

THRILLING WONDER STORIES

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A THRILLING
PUBLICATION



FEATURING

THE DAY TO COME

A Complete Novel of
Earth's Last Stand

By DON TRACY

THE TOMB OF TIME
A Novelet of Magic Life
By ROBERT ARTHUR

THE WHITE BROOD
A Spaceways Novelet
By HAL K. WELLS

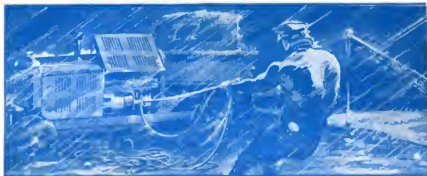
ONE MORE STEP— AND ETERNITY!

A true experience of LYLE EMMONS, Kildare, New York



"THE WIND HOWLED and the darkness seemed to increase as I arrived at the quarry, where I was to do a welding job on a big steam shovel," writes Mr. Emmons. "The rain streamed down in slanting torrents."

"IN THAT DRIVING STORM I had to move slowly about, walking with my back to the wind and tugging at my heavy gear. Then suddenly I had a horrible, sickening sensation of danger."



"I GRABBED MY FLASHLIGHT and swung it behind me. I peered straight down a 90 foot drop to a pile of jagged rocks! You can tell the world that I was thankful for my flashlight and its dependable 'Eveready' fresh DATED batteries. I'll never be without them!"

(Signed)

Lyle Emmons

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SCIENTIFICTION'S LEADING MONTHLY

THRILLING WONDER STORIES

The Magazine of Prophetic Fiction



Vol. XVIII, No. 2
November, 1940

IN NEXT MONTH'S ISSUE

GIFT FROM THE STARS

A Novel of a
Vegan Visitor

By
EDMOND HAMILTON

THE GOLDEN BARRIER

A Novelet of an
Atomic Tyrant

By
G. T. FLEMING-
ROBERTS

THE LIFE MACHINES

A Novelet of
Humanity's Successors

By
MANLY WADE
WELLMAN

VIA INTELLIGENCE

A "Mercury Expedition
Number One" Story

By GORDON A. GILES

and many others

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The cover painting by E. K. Bergey depicts a scene from Robert Arthur's novelet, THE TOMB OF TIME.	

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Manuscripts must be accompanied by self-addressed, stamped envelopes, and are submitted at the author's risk.

PRINTED IN THE U. S. A.

YES- I'M CONVINCED THAT I CAN MAKE GOOD MONEY IN RADIO. I'M GOING TO START TRAINING FOR RADIO RIGHT NOW.

NO- NOT ME. I'M NOT GOING TO WASTE MY TIME. SUCCESS IS JUST A MATTER OF LUCK AND I WASN'T BORN LUCKY.

BILL SAID "YES"
HE'S MAKING GOOD MONEY IN RADIO NOW



THIS N.R.I. TRAINING IS GREAT, AND THEY SENT REAL RADIO PARTS TO HELP ME LEARN QUICKLY

YOU CERTAINLY KNOW RADIO. MINE NEVER SOUNDED BETTER.

I'VE BEEN STUDYING RADIO ONLY A FEW MONTHS AND I'M ALREADY MAKING GOOD MONEY IN MY SPARE TIME

THANKS

OH BILL! I'M SO PROUD OF YOU. YOU'VE GONE AHEAD SO FAST IN RADIO

YES! I'VE GOT A GOOD JOB NOW AND A REAL FUTURE. THANKS TO N.R.I. TRAINING

TOM SAID "NO"
HE'S STILL WAITING FOR "LUCK"



BILL'S A SAP TO WASTE HIS TIME STUDYING RADIO AT HOME



SAME OLD GRIND -- SAME SKINNY PAY ENVELOPE -- I'M JUST WHERE I WAS FIVE YEARS AGO

GUESS I'M A FAILURE. LOOKS LIKE I'LL NEVER GET ANYWHERE

YOU'LL ALWAYS BE A FAILURE, TOM, UNLESS YOU DO SOMETHING ABOUT IT. WISHING AND WAITING WON'T GET YOU ANYWHERE



I will Train You at Home in Spare Time for a GOOD JOB IN RADIO

J. E. SMITH, President
National Radio Institute
Established 23 years

If you can't see a future in your present job, feel you'll never make much more money, if you're in a seasonal field, subject to lay offs, IT'S TIME NOW to investigate Radio. Trained Radio Technicians make good money, and you don't have to give up your present job or leave home to learn Radio. I train you at home nights in your spare time.

Why Many Radio Technicians Make \$30, \$40, \$50 a Week

Radio broadcasting stations employ operators, technicians, Radio manufacturers employ installers, inspectors, servicemen in good-pay jobs, Radio jobbers, dealers, employ installation and servicemen. Many Radio Technicians open their own Radio sales and repair businesses and make \$30, \$40, \$50 a week. Others hold their regular jobs and make \$5 to \$10 a week fixing Radios in spare time. Automobile, Police, Aviation, Commercial Radio, Loudspeaker Systems, Electronic Devices are other fields offering opportunities for which N. R. I. gives the required knowledge of Radio. Television promises to open good jobs soon.

Many Make \$5 to \$10 a Week Extra in Spare Time While Learning

The day you enroll, I start sending you Extra Money Job Sheets--start showing you how to do Radio repair jobs. Throughout your

Course I send plans and directions which have helped many make \$5 to \$10 in spare time while learning. I send special Radio equipment to conduct experiments and build circuits. This 56-56 training method makes learning at home interesting, fascinating, practical. YOU ALSO GET A MODERN, PROFESSIONAL ALL-WAVE, ALL-PURPOSE SET SERVING AS INSTRUMENT to help you make money fixing Radios while learning and equip you for full time work after you graduate.

Find Out What Radio, Television Offer You

Act Today! Mail the coupon for my 64-page book "Rich Rewards in Radio." It points out Radio's spare time and full time opportunities and those coming in Television; tells about my Course in Radio and Television; shows more than 100 letters from men

I have trained, telling what they are doing and earning. Read my money back agreement. MAIL COUPON in an envelope or paste on a penny postcard--NOW!

J. E. SMITH, President
Dept. OM9,
National Radio Institute
Washington, D. C.



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National Radio Institute, Washington, D. C.

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Over 700,000 People have studied music this easy way



Now You, Too Can Learn to
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Without a Teacher

Easy as A-B-C



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Seven hundred thousand—what a gigantic orchestra they would make! Some are playing on the stage, others in orchestras, and many thousands are daily enjoying the pleasure and popularity of being able to play some instrument. Surely this is convincing proof of the success of the new, modern method perfected by the U. S. School of Music! And what these people have done, YOU, too, can do!

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*R. E., Bronx, N. Y.

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I didn't dream I could actually learn to play without a teacher. Now when I play for people they hardly believe that I learned to play so well in so short a time.

*H. C. S., Calif.

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*W. H. S., Alabama.

*Actual pupil's name on request.
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D ID you know that scientists have weighed the Earth? It's all been done by the wizard-scales of the mathematicians and physicists. And they have calculated Earth's weight down to the very gram!

The Earth—the science boys tell us—weighs 5.974×10^{27} grams!

Or, if you're too lazy to figure it out, our planet tips the cosmic scales at 5,974,000,000,000,000,000,000,000,000,000,000,000 grams.

But don't go away. Sir Arthur Stanley Eddington has computed the number of protons in the physical Universe. The answer is 10^{78} protons. That's the equivalent of the number 1 followed by 78 zeros!

THE WORLD BREATHES?

WE wonder how you science-fictioners would have greeted the theorists of the year 600!

In his book, "The Story of Human Error," Joseph Jastrow tells us how savants of that day explained the tides of the ocean. Isadore, Bishop of Seville, promulgated the ingenious explanation that there are passages in the depths of the sea, like nostrils of the world, through which its breath is alternately inhaled and exhaled. Thus, the waters of the ocean are made to rise and fall.

Needless to say, time and tide have proved that Isadore was all wet!

WATKINS FORECASTS

IT was at the turn of the century that John E. Watkins wrote for *Ladies' Home Journal* some of the things he expected to happen in the next 100 years.

"Photographs will reproduce the colors of nature. . . Pictures will be transmitted from far away by telegraph. . . Trains will be artificially cooled. . . Orchestras will give long-distance concerts. . . Farmers will have automobile plows. . . Fleets of airships will float over cities and surprise the enemy with deadly thunderbolts."

Pretty good foresight for a writer who looked beyond the horizon, eh? The speed with which scientific development overtakes imagination doesn't surprise us.

So here's hoping posterity gives T.W.S. a 100% batting average when the historians of tomorrow scan our files!

HANG ON TO THE ZEROS

YOU don't have to wrestle with Herculean figures from now on! For astronomers have devised a special scientific shorthand!

The star-gazers are tired of juggling mile-long figures that express the distances be-

tween Earth and various stellar bodies. So they've invented their own celestial yardstick.

Light travels six trillion miles a year. Astronomers refer to that monstrous distance as a "light year". But that's nothing!

When an object is 206,265 times as far away as the distance from the Earth to the Sun, that is, when its parallax is one second of arc, its distance is one parsec (parallax second). That's scientific shorthand for three and one-quarter light years. A megaparsec is one million times this distance.

So, when you overhear an astronomer telling his buddy that a cluster of faint galaxies in Ursa Major is 70 megaparsecs away, you'll know that's short for saying that these objects are around 1.3412 sextillion miles distant!

TARGETS FOR METEORS

ONLY good luck has saved our large cities from meteoric destruction!

It is only good fortune, astronomers say, that the large meteors that have fallen on Earth have landed in uninhabited parts of the globe instead of in large cities. Nothing but chance prevents one of these great masses of incandescent iron traveling 20 to 70 miles a second from striking New York and knocking it as flat as a pancake.

The large meteor that fell in Siberia changed a huge forest into a completely bare area for many miles. The entire region is torn and furrowed as though by a gigantic harrow, and pitted in places with large craters. There are about 20 million meteors striking Earth daily. Usually they are burned to dust by the friction of the air before they come close enough to do any damage. But every day a good-sized meteor does hit Earth, landing usually in oceans or uninhabited areas. That's why cities like New York exist on borrowed time.

A NEW RECORD

THE conclusion of Gordon A. Giles' present "Via" series marks the ninth of these
(Continued on page 128)

How Big Is YOUR PAY-CHECK?

*If you earn under \$3,000,
Higher Accountancy may
be the answer for you*

"THE size of my pay-check? What business is it of yours?" Perhaps that's the first reply that comes to your mind.

But—stop a moment. It really *is* our business—to help men just like you. In fact, it's been our business here at LaSalle for 30 years.

If your pay-check isn't all that you'd like it to be, why not consider accountancy? Why not become a member of this well-paid and respected field? Why not, in short, prepare yourself to earn real money—insure a good home for your family—a new car—an education for the growing youngsters—a bank account for a rainy day . . . these and many more of the precious things in life?

Maybe you're one of those ever hoping for "breaks" that will give you a higher standard of living. Yet that's precisely what most of 30,000,000 other employees in this country are doing.

Not all of them, of course. Here and there you find ambitious men who aren't depending on luck to carry them ahead. They're following a tested path to increased earnings—leaving nothing to mere chance. They're *training* themselves for better jobs—every week spending a few hours in serious but interesting study at home.

Some day, as expert bookkeepers and later as accountants, these determined men will have standing and a considerably larger income—in a profession that pays and pays well.

Why don't *you* do as they are doing—take advantage of LaSalle training? Even though you do not know the fundamentals of bookkeeping now—you nevertheless may have an excellent opportunity to master accountancy. Many others have done it.

Perhaps you're asking yourself, "But don't these others possess natural ability that I lack? Don't I need a special talent for all this?"

Ask rather, "If I do my part, won't I get results, too?"

You will! For all it takes is intelligence, serious study and work—not genius. Under the LaSalle system you solve problems by simple steps . . . from day to day, as an expert accountant does. You use the same basic principles. And when these problems become difficult and puzzle you, you get counsel that could be matched only through personal coaching by a battery of experts in a big accounting house.

In a comparatively short time, you train yourself in Elements of Accounting, Principles of Account-



ing, Auditing, Cost Accounting, Business Law, Organization, Management and Finance. The training—complete and intensive all the way—takes you right into C.P.A. coaching if you desire.

Later, when you're an accountant, it may be possible to go into business for yourself as a public accountant and be independent. Or, if you choose to work for someone else as an executive accountant, it well may be for a salary several times that which you draw now.

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If you're tired of pinching pennies, investigate accountancy and LaSalle training. There isn't a faster, less expensive or more convenient method to master accountancy. Fill in the coupon and mail. We'll send you our 64-page book, "Accountancy, The Profession That Pays."

Then, when you read all the facts, you yourself will be able to judge best whether you have the will to study and apply your best efforts—toward a more secure future.

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THE TOMB OF TIME

By ROBERT ARTHUR

Author of "Song at Twilight," "Cosmic Stage," etc.

Nature Had Outlawed All Forms of Prehistoric Life—But Dr. Davolio's Wizardry Could Make the Past Live Again!

CHAPTER I

Fossils for Sale

Life can only go forward. Nature never permits the past to live again, or a life-form she has killed to rise from the dead.—The Progress of Life, by Dr. Steck Davolio.

THE outside bell had pealed three times before Johnny Marlowe, simultaneously thinking of Janice Ames and shellacking the chalky bones of a Seymouria, became aware of it.

Seymouria was a short-legged, terrier-sized insectivore that had expired some two hundred million years previously in Texas, little dreaming it would finally wind up in the basement of the Nickering Fossil Museum.

Johnny Marlowe was intensely interested in the Seymouria, or what remained of it. Because it showed variations that indicated it antedated any other specimen yet found.

Which fact, if proved true, would probably make old Harrison J. Nickering, whose fossil-phobia was a mania known from coast to coast, throw seven cat-fits with delight and give Johnny Marlowe a bonus, a raise, and maybe—though it was unlikely—a vacation. All of which would permit him to grab a long awaited opportunity to marry Janice Ames, who was old Nickering's niece as well as secretary, and maybe give a little attention to the future as well as the past of life on Mother Earth.

Though how H. N., who was a domineering tyrant with a temper that could give Vesuvius points, would take to the idea—

Then the bell broke into his pleasant day-dreams of Janice, of fossil-



They were too stupefied to move

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A Complete
Novelet
of
Magic
Life



Johnny fired at the Tyrannosaurus three times

A Complete
Novelet
of
Magic
Life



Johnny fired at the Tyrannosaurus three times

hunting expeditions together, and of some day being head of the paleontology department here at Coast College. Johnny reluctantly put aside the brush and tramped upstairs.

Outside the locked doors of the Mission-type building a tall man, broad-shouldered, face bronzed to a coppery hue, waited with no effort to conceal his impatience. Johnny unlocked the doors and had barely time to note the long, élan features, the dark, burning eyes and the jet black beard of the caller before the tall man pushed past him, a large fiber carrying case in each hand.

"Tell that old fossil-thief Nickering it's Steck Davolio, and I can only give him an hour," the caller directed, pausing in the lobby of the museum. "And tell me—did he see in yesterday's paper about Simonson, in Boston, getting hold of the second specimen of *Compsognathus*?"

"*Compsognathus*!" Johnny ejaculated. "The cat-sized dinosaur? I don't know. Maybe. He was in a rage yesterday and went around sneering at everything we've got. I've been hoping to give him a new *Seymouria* from the early Permian period to gloat over, Doctor Davolio, but—"

"Call me Steck," the other ordered. "The human race hasn't got more than a hundred thousand years left to it—only an afternoon, compared to what the great lizards had—and we can't waste any of it on titles. And just let Nickering know I'm coming up."

Carrying his heavy cases lightly, the tall man trotted toward the stairs. Johnny Marlowe, awed eyes following the legendary figure of the scientist, paleontologist, fossil-hunter, and genius-in-disgrace of the scientific world, rang his boss and gave him the message.

"Tell that swindling rascal Davolio I don't want to see him!" A roar blasted his ear-drums. "Throw him out. Call the police! Tell him I'm going to have him arrested. That 'Burma Man' skull he sold me—"

Johnny hung up hastily. When Nickering got started on the "Burma Man" skull, which had proved to be only the brain case of an ape suffering from some kind of apian hydroceph-

lis, bystanders ducked. Now, anticipating a violent clash, Johnny sprinted for the stairs.

Because Steck Davolio, unheard of these last three years and presumed dead by other paleontologists, was to Nickering what a red flag is to a bull. It was from this very college, which sponsored the paleontological department and museum, that Davolio had been discharged in disgrace ten years before.

IT was too bad, Johnny had often thought, that Davolio's dismissal, for pocketing a large sum out of the expense money Nickering had provided for a fossil hunt into the Gobi, should have come just at the time of publication of Davolio's book, *The Progress of Life*. Because the book, in spite of its sneering references to all of Davolio's contemporaries as a bespectacled old bunch of fuddy-duddies, was sound and even brilliant.

But the book, because of its biting tone, and because Davolio himself had just been discredited as a swindler, had received nothing but jeers, and Davolio had been bitterly furious. He had blamed Nickering for his dismissal, for the opprobrium heaped upon him. Unable to get another job, in spite of his undoubted genius, Steck Davolio had turned explorer and fossil-hunter, making some amazing finds in the far corners of the globe.

But even here he had not been able to keep his skirts clear. Ugly tales of brutality to natives, and even of murder, had come back from some of his trips into the unknown, and then it had gradually become apparent that some of his most astounding discoveries had been fakes. His last hoax had been the "Burma Man" skull, which he had sold to Nickering through an intermediary, for a whopping price.

So that when he had dropped out of sight, the general verdict had been "good riddance." But now, with the man apparently returned from the dead—

However, when Johnny Marlowe burst into Nickering's office, no mayhem was being committed. Janice Ames, cool and lovely as always, was

standing behind the squat, gray-haired millionaire, staring with interest at the fossil-hunter, and Nickering himself, leaning on his desk of petrified wood, was scowling at Davolio.

"Three!" he was barking. "I'm giving you three minutes to get out before I call the police!"

Janice and Johnny exchanged quick looks of affection. Then, relieved to find everything relatively calm, the young paleontologist transferred his attention to Davolio.

Davolio, stooping, unlatched one of his fiber cases and drew out a small box with a hinged lid. Setting this on the desk, he threw back the top.

"Take a look," he invited, his voice a suave purr, "and then talk about calling the police."

Nickering looked, and in spite of himself his shaggy mane of pepper-and-salt hair bristled with electric excitement.

"Compsognathus!" he screamed. "A perfect skeleton! And looking as fresh as yesterday's chicken bones. I don't believe it!"

Johnny and Janice gaped over his shoulder at the tiny dinosaurian skeleton in the box. Compsognathus, the dinosaur no bigger than a rabbit!

"No!" Johnny choked. "Mr. Nickering! Tyrannosaurus! That's Tyrannosaurus Rex! In every detail except size!"

Steck Davolio's heavy eyebrows rose in sardonic amusement.

"Smart assistant you have, Nickering," he commended. "He's right. The old Tyrant himself. Under personal management of Steck Davolio."

"Tyrannosaurus!" The excited millionaire bellowed the word. "Impossible! Who ever heard of a Tyrannosaurus that small? Davolio, you've gone too far with your phoney manufactured fossils!"

But even as he raved, he reached for a large magnifying glass. Gradually his words trailed off into silence. At last he put the glass aside.

"Well," he said, in a subdued tone, "it's genuine, all right. I mean, it's a genuine skeleton. But I won't believe it's a Tyrannosaurus."

Davolio's face had darkened. Nickering's taunt, but he shrugged.

"What matter?" he asked. "It's unique, whatever it is. You want it?"

"Of course I want it, damn you!" In his collector's excitement, Nickering seemed to have forgotten his enmity for the other. "Where'd it come from?"

"Well, I'll tell you," the fossil-hunter answered with buttery blandness. "It originated in the Upper Jurassic formations in Colorado."

FOR a moment Nickering seemed on the point of exploding at this evasive reply. But he held his tongue, looking with hungry avidness toward Davolio's cases.

"What else have you got?" he demanded.

Davolio brought out two more boxes similar to the first. He opened them on the desk. Silently, the three, their faces expressing amazement and incredulity, stared at the skeletons within.

"Allosaurus and Tricertops!" Nickering roared. "And they're no bigger than cats! I don't understand it, Davolio. There's a mystery here, and I don't like mysteries! *Where did these bones come from?*"

Steck Davolio sighed. One by one he closed the boxes.

"I see I'll have to take tonight's plane East and talk to Simonson," he remarked. "Well, of course, if you don't want to do business—"

"Hold on, damn it!" the millionaire raged. "We're going to do business, and you know it. I'll solve the mystery later. Right now, how much?"

The fossil-hunter grinned and replaced the boxes on the desk.

"I'll gamble," he proposed. "Give me whatever cash you have in the safe there now, and no matter what the amount, I won't ask more."

Nickering chewed his lip, little eyes glaring. Then he gave in, as if fearful lest Davolio still intended to take these three tremendously exciting skeletons elsewhere. He nodded, and Johnny opened the small safe in which Nickering kept cash for the purchase of any desirable specimens that might come in. He brought the cash box to the desk, and Nickering dumped the contents out.

"There," he growled. "But how you guessed I'd just withdrawn money from the bank I'd give a pretty sum to know."

Davolio counted the cash and pocketed it with a look of satisfaction.

"Fifty thousand," he remarked. "Just about what I hoped. And you won't have to pay to know why. I read the item about Simonson yesterday, and knew you'd see it and turn green with envy. The first thing you did was rush to the bank and draw out some money, so you could snap up any bargain that might come along, and have the edge on Simonson again. You collectors have an average mental age of six. You wouldn't be collectors if you didn't."

Purple congested Nickering's features, but he forebore comment.

"I heard a damned funny noise just then," he grumbled instead. "And it came from that case you haven't opened. What have you got in that case?"

Davolio's eyebrows rose in mockery.

"If I show you, you won't believe it, and even if you believe it, you're too stingy to pay my price," he retorted. "However—"

He strode to the window and closed it. From his left pocket he took a pair of leather gauntlets and put them on. Then, from his right pocket he withdrew a strange crystal of colored glass. He put it on the table, and it shed an eerie, lambent radiance over the desk-top. Only then did he unlock the case, open it, reach in, fumble about for a moment, and bring out something that struggled to escape from his grasp. This he placed directly in front of Nickering's eager eyes and stood back.

And for a moment, their eyes popping, Johnny, Janice, and their employer forgot to breathe.

its tail. Of this length, the body made up not more than a third. The neck was long and tapering, ending in a tiny head which was split by a gaping jaw toothed only in front. The tail dwindled away into whiplike thinness. The gray-green skin was pebbled and leathery, and from behind a half closed film, tiny eyes peered up at them.

"Brontosaurus!" choked Nickering, while Janice and Johnny both gave wordless exclamations of surprise. "A living brontosaurus, and smaller than a dog! Janice! Ring for the others. Tell them I want them here at once to see this!"

Janice used the inter-office phone for a moment, while Nickering gloated over the creature that now nuzzled along the polished desk top, searching for food. Johnny Marlowe, from the corner of his eye, saw Steck Davolio standing back, a curious veiled smile on his face, but in his absorption, he attached no meaning to it.

Then the door opened and Pickerman and Donaldson, the rest of the paleontology department staff, filed in. They were different sizes and shapes, but they were alike in one thing—a browbeaten expression of men expecting to be tongue-lashed for something.

Incredulity lit their eyes as they saw the thing on Nickering's desk.

"Brontosaurus!" gasped Pickerman. "Living!" echoed Donaldson. "B-but—"

No one waited for him to finish. For Davolio was reaching into his case again.

"And," he said agreeably, "here's a living Tyrannosaurus just as small, a living Tricertops ditto, and a living Pteranodon, most grotesque of all the pterodactyls! Look out it doesn't get in your hair."

With the aplomb of a magician conjuring the creatures out of thin air, he placed the animals on the desk. Immediately the tiny Tyrannosaurus raised up on its powerful hind limbs and glared about, forefeet pawing the air. The Tricertops, as big as a large rat, caught its eyes first.

One third of the Tricertops was head, and this head was guarded by a great bony shield that spread out

CHAPTER II

The Past Lives Again

THE creature on the polished stone surface of the desk was perhaps two feet long from nose to the end of

like a frill well back over its neck. Three-inch horns, sharp as knives, pointed forward from the bony collar and another, smaller, perched upon its snout.

Tyrannosaurus reared, emitting a hoarse cry that echoed through the room like a siren's whistle, and plunged toward the Tricertops, risking impalement on the sharp horns in order to reach the unprotected spinal column. But Davolio intervened.

His gloved hand caught the furious dinosaur behind the neck and he hauled it away from its prey, tail lashing, shrill whistling scream protesting.

"No, boy!" he admonished. "If you're hungry, have a go at this."

From the bag he took a raw steak, which he threw down. The dinosaur planted one hind foot on it and began to tear the meat in great pieces, gobbling them greedily and eyeing the clustered men with savage defiance.

"Pleasant little fellow," Davolio grinned. "Now—look out!"

Nickering ducked at the cry. The pterodactyl swooped by his face, missing it by a fraction of an inch. The grotesque creature, tremendous jaws clacking, unbelievable bony growth protruding straight out from the back of its head to balance those jaws, rose, circled, flapped twice about Davolio's head, and alighted on his outstretched arm.

"He didn't mean to harm you," the fossil-hunter chuckled. "Probably thought your nose was a ripe apple. Here's what he really likes."

HE set the pterodactyl on the desk and took a head of lettuce from the case. Breaking it in three pieces, he gave one to each of the herbivorous specimens. Amiably, as befitted their mild, sluggish dispositions, they began to munch the greenstuff.

"Davolio!" Harrison Nickering said in a horse whisper, finding his voice at last, "*where did these creatures come from?*"

"Yes!" Pickerman put in, running excited fingers through his hair, "where, man, where, in the name of heaven? And what's that shining crystal on the table?"

The bronzed man let smoke plume forth from his nostrils.

"Maybe I caught them in mouse-traps out in back of somebody's barn," Davolio suggested, and in his eyes was such a light of savage mockery that Johnny Marlowe frowned, trying to understand what Steck Davolio might be up to—for that he had some as yet unrevealed purpose in coming here, Johnny was suddenly positive.

"Or maybe I dreamed them," Davolio went on, as the others stared at him blankly. "Or perhaps I woke up at Christmas and found Santa Claus had left them in my stocking. Or maybe they don't exist at all. For they shouldn't you know. Once nature has killed off a species, she never lets it come to life again. And these she very definitely killed off, for reasons of her own, a number of eons ago. Along with a vast number of other reptiles, many of whom have left not even a bone for us to find."

"I know that as well as you do!" Nickering almost shouted. "That's why I want to know where these creatures came from! Tell me that, tell me how it happens they're alive when by all the laws of nature they shouldn't be, and you can name your own price."

"Ah!" breathed Davolio. "That's kind of you. But I'll name it anyway. And it's—nothing."

"Nothing?" For an instant Nickering seemed stupefied. "I don't understand."

"Nothing!" the fossil-hunter repeated with emphasis, and his voice had taken on a new note that now made the others abruptly aware of the dark, smouldering light Johnny had already seen in his yes. "They're not for sale!"

"Not for sale!" The words came from the millionaire with choleric dismay. "Stop joking, man! Name your own price! Or I'll make one. A quarter of a million!"

Steck Davolio reached out, seized up the various creatures, and began to stow them in their carrying cases.

"Half a million!" bellowed Nickering.

Davolio snapped the case shut and straightened.

"A million dollars!" screamed the

collector. "A million in cash!" His face was purple with frenzy, and the cords of his neck stood out. He was like a man on the verge of a stroke, and Johnny Marlowe, exchanging one startled glance with Janice Ames, saw that she too now realized what as yet had not become apparent to the others—that Davolio had deliberately baited Nickering up to this point. Had carefully worked up his excitement, had built up the collector's mania in him until possessing these four incredible creatures meant more to him than anything in life. And having done so, was going to snatch them away.

"A million dollars?" Davolio's tone was contemptuous. "What's a million dollars to a man who can plunge his hand into the very tomb of time and resurrect the extinct eons? I took the fifty thousand for the skeletons for the fun of it, and because I have no use for them. But money is nothing to me—now. It was once, after I'd been kicked out of my job by addle-headed fools, at the behest of a rich tyrant.

"Yes, money had meaning to me then, and I had my fun, and my revenge, getting some of it from you and the rest with faked fossils, like the 'Burma Man' skull. Showing you up. Making fools of you."

SOMETHING cold and bitter was glowing in the tall man's eyes now, and his grip on his carrying cases tightened until his knuckles were white.

"And my book, throwing a whole new light on the past! Your enmity—and that of others like you, but smaller and less powerful—made it laughed at and sneered at. Perhaps you think I liked being considered a renegade and a cheat, a brilliant man 'gone wrong,' as was probably said of me a thousand times. Well, I didn't. I like honors and respect as much as any other man, and it rankled to be denied it by my inferiors.

"But for all your faults and all your stupidity, there is one real thing about you—your knowledge of and mania for the past. And that has put you in my hands, Nickering. For today I've opened the past to you, living, breathing, resurrected. For a quarter hour

you have stared into the dead ages and seen creatures no living man could dare hope to see. For fifteen minutes you have visualized yourself as owner of these living ghosts, and possessor of these rarest and most incredible creatures man's mind can imagine.

"And now I'm taking it all away from you. You'll never rest again, never know satisfaction or contentment, knowing these creatures exist and you haven't got them. And I'll have a revenge I've been vindictive enough to long for for ten years. I've got something your money can't buy, because I have money now, too—enough. A man can't explore the ends of the earth for years without finding something, and three years ago—just before I vanished, and no doubt was put down for dead by you and the others, with small regret—I stumbled onto a vein of gold that made me independent of anyone. Yes, and obviously I stumbled on something else, too—these."

Davolio nodded at the bags he held.

"And what other wonders I may have uncovered you can try to guess at your leisure," he finished, dark eyes fixed intently on Nickering's swollen, mottled features. "Wonder—and suffer because you don't know. Now—good-by."

Without a backward glance he strode through the doorway and was gone, leaving them all staring after him open-mouthed, while Harrison Nickering struggled for words and could not get them. Then at last Nickering found his voice.

"Marlowe!" he said, and his tone was hardly human. "Follow him! Don't let him see you, but find out where he goes. Because wherever it is, we're going there too. If he won't sell those creatures—we'll take them!"

CHAPTER III

First Clue

IT WAS an easy order to give, but impossible to obey. Johnny Marlowe was able to follow the fossil-

hunter to the airport. But there Davolio took off in an old amphibian that airport attendants said was his own and vanished into the blue.

Harrison Nickering raved and stormed. But all his tempers, all his threats, all his millions were powerless. Davolio remained unfound.

Johnny Marlowe was fired a dozen times in the days that followed. Only the thought of Janice kept him from accepting as final any one of his dismissals by the choleric, aged-looking man Harrison Nickering had become almost over night.

For Davolio's prediction had been a true one. The millionaire was like a man possessed. As long as those precious beasts eluded him, he could not sleep, could not eat. The fact that Johnny was able to confirm his first suspicions concerning the Seymouria appeased him not in the least. And with sinking hearts Johnny and Janice realized that until Nickering obtained those living fossils, they could never hope for consent from him to their marriage. And without his consent, they could do nothing.

The other members of the staff slunk about in apprehensive silence. They had all been sworn to secrecy. Nickering was determined to trace Davolio and get the four reptiles somehow. Then, and only then, should the world know of them. Meanwhile, in pursuit of that end, all the resources of his fortune were turned toward tracing the fossil-hunter.

The first clues they picked up led, apparently, to nowhere. They traced Davolio back to the site of his last fossil hunt, in the Jurassic formations of the Colorado badlands. Nickering, Johnny, and Janice flew there in person, on the chance the spot was the origin of the skeletons and living animals Davolio had shown them.

But the fossil beds in the neighborhood held nothing new, and they could make little of what they found at the spot to which the Indian who had been Davolio's chief guide led them.

There, in a box canyon created only in recent centuries by water erosion, they found a few particles of what looked like fused quartz. There had

been many more such pieces, the guide declared, but the rains of three winters must have washed them away.

And from the midst of them, as though they had formed a covering, had come six great slabs of darkish rock, as regular in size and shape as trays in a trunk, which Davolio in intense excitement had summoned laborers to carry back to his camp.

More the Indian could not tell them. Except to point to a great hole that gaped in the cliff, halfway up. It was rectangular, and had straight sides, as if it had held some immense chest that the eroding cliff had let drop into the canyon below.

"Tertiary rock formation," Johnny observed, eyeing it with a scowl. "Almost looks as if something had been buried in that hole once. But that's silly, because if it had, it would have to have been put there a heck of a lot of million years ago."

With considerable effort Marlowe clambered up the canyon side, was able to cling for the few seconds needed to take a snapshot of the spot, and make sure it was quite empty. Then he half slid, half fell to the rock below. And it was in getting up that he made their only find. It was a slight clue—but important.

It was a rounded stone—or seemed to be—that his foot dislodged. But when he picked it up, he saw that it was a broken shell half as large as an ostrich's, filled with loose gravel. Johnny turned it over in his fingers, scowling.

"Shell from a dinosaur's egg, or I'll eat it as it stands," he remarked without great enthusiasm. "But the species must be unknown. Got broken some time in the past. If I didn't know it was impossible, I'd say not more than a few years ago. Has a curious deposit on parts of the shell. Feels a little like gelatin. Probably a gelatinous mineral encrustation."

BUT Harrison Nickering, having come hoping to uncover the secret of living fossils, was not interested in the mere shell of a dinosaur egg. Impatiently he led them back to the plane and, no wiser than before, they flew back to San Francisco.

There Johnny gloomily developed the snaps he had taken, half his mind concentrating fruitlessly on the problem.

Where had Davolio obtained the four tiny mammals he had shown them? Where *could* he have got them? He was stumped—completely.

Marlowe passed the negatives, as they came from the washing bath, to Janice, who ran them through the drying rollers.

"This one of that hole in the cliff," she remarked, holding the first up to the light, "gives me a funny feeling. It—it's like a grave somehow, from which the coffin has been stolen. That's a silly idea, isn't it? But why are all the negatives of this roll streaked? Did something go wrong with the developer?"

"Streaked?" Johnny Marlowe asked, and took the film. Then, "Light-streaked!" he exclaimed. "I don't understand it. I was never more careful—"

HIS words broke off abruptly as he peered closely at the negatives.

"Janice!" he said, perplexed, "these aren't ordinary light streaks. I've seen something like this before, on film in a hospital, brought too close to some radium. Radium rays will spoil a roll of film, you know. They're just like X-rays."

"Radium!" The girl's eyes held his in bewildered questioning. "You mean there may have been radium in that hole?"

"Or buried in the cliff some place near," Johnny frowned. "Radium salts, maybe. Whew, it's lucky I was only up there a few seconds! But—radium in a Colorado cliff! It doesn't make sense!"

The ringing of the intra-building phone interrupted him. It was Harrison Nickering, ordering them to his office, and when they got there they found the collector radiating fierce satisfaction.

"I've found him!" he barked, thrusting a pencil-marked map into his assistant's hand. "Knew I would. World's too small to hide forever these days, if somebody wants to find you bad enough. He's there. On that

island I've marked, off the lower coast of Central America. Bought it three years ago from the government, just about the time he disappeared. It was deserted, but he brought in some workmen from the interior, put up some buildings, and since then they've never left the place. What he's doing there, nobody knows."

"But why'd he pick *that* section?" Johnny demanded, staring at the tiny dot Nickering had ringed with red. "That's earthquake country. I was on a dig in that general region my junior year, and Adams, our earthquake man, didn't have an easy moment the whole time. Said there was a local fault still settling just off-shore that might go any time. Davolio must not be aware of it, not being a specialist in that line."

Nickering waved him impatiently to silence.

"What of it?" he snapped. "Whatever Davolio's up to, that's where he's hiding. And that's where he's got those four creatures."

"Yes, of course!" Johnny answered, excitement gleaming in his eyes. "And we've got to go down there at once! If he's got four specimens as precious as those with him there, we've got to warn him, got to let him know the possible danger so he can put them in a safer place and—"

"Warn him!" roared Nickering. "Damn it, no! He's a crook, and I don't care if a dozen earthquakes gobble him. What I want are those specimens! He's kept everybody away from the island, and frightened the nearby natives by spreading tales that the island is overrun with devils fifty feet high and hundreds of feet long, with horns and fangs and claws, but he's not going to keep us away! We're going down there and by hook or by crook we're going to get—"

But Johnny Marlowe did not even seem to hear him. He grabbed his startled employer by the coat and almost shook him in his intense and feverish excitement.

"Devils!" he exclaimed. "Mr. Nickering! That's native exaggeration, but—Don't you see? It's the only answer. It has to be! *Down on that island Davolio's raising dinosaurs!*"

CHAPTER IV

Dinosaur Island

TWELVE days later, Johnny Marlowe lay flat beneath the spreading branches of a jungle tree, on the edge of an open slope overgrown with sawgrass, leading down into a bowl-like depression half a mile across and a mile wide. Dawn was graying the sky. Close beside him Janice lay quietly asleep on a bed of hastily cut grass. Beyond her Harrison Nickering, looking in restless repose squat-
than ever, lay tossing uneasily.

In spite of their feverish excitement, it had taken them until now to get here, to Steck Davolio's secret island. A seaplane had brought them to a tiny native village on another islet thirty miles to the north. An ancient motor launch, waiting there by prearrangement, had brought them the rest of the way through a moonless night, hugging shores where an ugly surf boomed.

The launch waited now, tied up in a rocky cove at the northern end of the small islet, where their two boatmen waited their return. Coming ashore in the darkness, the boatmen had fearfully led them up the rocky slopes of the shore, through the thick but not impenetrable tropic growth, to this spot on the edge of the central clearing that made up the center of the island. Below, they had said, were meadows and swamps where the devils roamed. Then, leaving the group of three to wait the dawn, they had scurried back to their boat.

As he waited for the sun to rise in the lightening sky, Johnny Marlowe found his heart beating faster, and a queer tension holding all his muscles taut. He knew what they must find here—logic wouldn't permit any other answer. But it was so impossible, so utterly incredible, that not until he had seen it would he really be able to believe.

He had tossed sleeplessly a dozen nights, racking his brain for an answer, and now, feeling in his pocket a bit of that dinosaurian egg shell he

had found in Colorado, he knew that somehow all this was linked up together in the true solution. Davolio, the gravelike hole in the cliff, the egg shell with the curious gelatinous coating, the miniature dinosaurs, this island—they all spelled the answer to this enigma of magic life.

Johnny sat up alertly. The sun was above the trees, and a sound had caught his ear. Nickering heard it too, and was instantly alert. A moment later Janice sat up, wide awake.

"Dogs!" she exclaimed. "I hear dogs barking."

"Come on!" Nickering ordered tensely. "Let's see what's happening."

On hands and knees they crawled a few yards to a point where, by parting the thick growth of grass, they could command a clear view of slope and the depression beyond. And as they peered downward, they gasped in unison.

A mile away were three low concrete buildings, blending into the jungle vegetation behind them. No one was in sight around them, although from somewhere beyond them was coming a low, roaring noise, with curious risings and fallings of pitch, like an alarm siren out of order.

But they scarcely noticed these things. For only a few hundred yards away a mixed, loosely scattered group of animals was browsing along the edges of the swamp the guides had told them was there, where rank vegetable growth luxuriated lushly in wild profusion.

EXCEPT for the four sheep dogs yapping at the heels of the beasts, for all the world as if driving sheep or cattle out to pasture, they might suddenly have been plunged a hundred million years into the past. For the browsing creatures were all dinosaurs, of a dozen different species, of a dozen different sizes and shapes, mighty, grotesque, nightmarish as no other creatures that had ever trod the globe.

"Brontosaurus!" Janice whispered to Johnny. "Look! They're ninety feet long at least! Two of them!"

"And Stegosaurus!" Marlowe gulped, in ecstatic forgetfulness of all

else. "Those things with the bony plates down their backs, rattling like a truckload of dishes on a cobble street. And there're two Trachodons, the duck-billed dinosaurs! Look at 'em pull that tree over so they can get at the young top leaves. And that's Corythosaurus heading into the water there—a cousin, you might say. You can tell him by the bony headdress. It's differently shaped from what we've always imagined."

"And Paleoscincus!" Janice put in excitedly. "Aren't they? Those things like giant turtles with beavers' tails and spikes along their sides. And Monoclonius, with the one big horn—"

"To think I ever lived to see this day!" Nickering gulped, subdued by the ecstasy of the paleontologist whose wildest dreams have come true a hundredfold magnified. "Dinosaurs being herded around by sheep dogs! Living relics of the reptile era! No wonder Davolio was keeping this a secret. Wait till we get these beasts to civilization, set up a great glassed-in building for 'em, reproduce their natural conditions in it as nearly as possible, and put 'em on exhibit! The whole world will flock to see them. The whole world!"

Suddenly Janice shivered, and moved over closer to Johnny Marlowe.

"I don't like it," she declared, her eyes shadowed. "It's—it's not real. It's like a nightmare. These creatures ought to be dead. But they're alive. And—and—well, there's something not right. I can feel it. The sun's all wrong, and the air's wrong, and it's too quiet, and—and— Oh, uncle, please! Let's go back to the boat. Let's go home! Let's leave Davolio—"

"Leave!" Harrison Nickering roared, slinging his field glasses about his neck and jumping up, rifle grasped in one hand. "We're going down there now. No use waiting longer. I'll have things out with Davolio now, and tell him that he can have the credit, that I was wrong about him, that I'll make a public apology. Anything. Only he's got to let me in on this, let me take some of the creatures back North, let me—"

"Mr. Nickering!" Johnny grabbed

his arm. "Wait! Janice is right. Something is wrong. The sun's queer, and it's too still. All the birds have stopped singing. The dinosaurs feel something, too. Look at them!"

The millionaire collector hesitated. The great dinosaurs below them, a moment before peacefully browsing in or along the edges of the swamp, were craning upward, peering about them with tiny eyes. The two Brontosaurus, tremendous necks extended, sniffed the air. The Stegosaurus were waddling around in circles, looking for invisible enemies. The turtlelike Paleoscincuses lashed their tails in agitation.

The rest of the dinosaurs were scattering over the plain, lumbering aimlessly despite the excited dogs yapping at their heels, trying to round their titanic charges into a compact group.

"They sense something we don't know about," Johnny said, every faculty alert for the first indication of what might be coming. "They—"

EVEN as he spoke, it came. Of a sudden they could not seem to keep their footing. The ground beneath them was quivering. Johnny threw an arm about Janice, and except for his grasp, she would have fallen. Nickering stumbled to one knee, a look of blank surprise on his face.

"Earthquake!" Marlowe gasped. "The fault's settling again. Maybe it'll only be a minor slip, but—"

They staggered again, and he bit his tongue trying to speak. The earth shifted under them like a ponderous animal twitching its skin. In the depression below, the dinosaurs were charging in all directions, bellowing in a dozen different notes that were over-ridden by a deep-toned, whistling roar from the distance.

Now, from the low buildings across the hollow, half a dozen running men appeared. They headed into the jungle, toward the landward side, sprinting for their lives. The last was vanishing when another man, a white, ran out of the center building, rifle in hand, and fired a futile shot after them.

"Davolio!" Nickering cried. "His

workmen! They're deserting him!"

"Come on!" Johnny Marlowe said with sudden decision. "Mr. Nickering! We've got to help him if we can to control the dinosaurs. We mustn't let anything happen to them now. Not until they've been studied. Not until the world can know about them!"

"Yes, Johnny!" Janice agreed. "You're right. Uncle, come on!"

Then they were stumbling forward through the knee-high grass, skirting the near edge of the swamp. Davolio saw them, started toward them, but wheeled about abruptly as a great crashing and bellowing arose from the jungle behind the buildings, and began to run in that direction.

"Probably has—a corral—in some rocky canyon there," Marlowe puffed. "Keeps the Tyrannosaurs and other carinvores there. The herbivores—are harmless. But the others—would eat 'em."

Then he had to conserve his breath. They were running now past the waddling forms of great, stupid beasts who did not seem to see them. He and Nickering both had rifles, and Janice had a revolver strapped to her waist, but they were in no danger from the vegetation-eating dinosaurs unless they got directly in front of one and were run down.

They were within two hundred yards of the group of buildings when another earth tremor passed beneath them, and they all three sprawled on the ground. When they got to their feet again, a great figure was bursting out of the jungle into which Davolio had plunged.

It was a full grown Tyrannosaurus, jaws agape, bellowing in rage and fear. It did not seem to see them, but ran straight into the farthest concrete building, whose roof reached only to its chest. The building gave way, and the great reptile tore through the shattered ruins and onward, toward the frightened, harmless herbivores beyond.

They heard rifle shots in the jungle, riding sharp and clear over the thunder of frightened animals and the earth-cry of the 'quake. But Davolio did not reappear.

"The building!" Marlowe cried.

"We mustn't let the Tyrant see us!"

A heavier tremor threw them headlong together. Johnny picked the girl up, and bruised, they raced onward. The last vibration had split the concrete walls of the nearest building, and they crashed outward, throwing up lime dust. But the middle structure was still intact, and close on Nickering's heels they stumbled across the threshold. Then, gaspingly getting their spent wind back, they looked about.

The building was long and low, with no windows. But it was lighted by overhead bulbs that flickered now as the continual tremblings shook the generator somewhere outside. Down one side were half a dozen glass cubicles in which other lights gleamed—incubators, they seemed to be.

IGNORING the vibration that flowed in waves through everything, they crossed to the nearest glass cubicle and peered in. It held a tiny Tricertops, the same, probably, they had last seen in Nickering's office, although it had grown appreciably since then.

The next three held the other dinosaurian miniatures he had shown them, a little larger in size, Johnny observed, in the quick glance that was permitted by their haste, that the incubators were bathed by a steady radiation of X-rays and artificial sun-simulating light that came from several crystal globes. That, probably, was the secret of the crystal globe Davolio had put beside the baby monsters. It exuded artificial light necessary for their growth. Marlowe had forgotten Nickering as, consumed by a queer excitement, he dragged Janice on to the next two glass cells. The girl's hand tightened abruptly on his. He heard her gasp. But he exhibited no surprise himself, because somehow he had known what he must see.

Within each incubator was an egg. The two were of different sizes, the nearer twice as large as an ostrich's, the further no greater than an over-large duck egg. Both had a queer greenish coloration, similar to that one bit of shell in his pocket. And one was on the point of hatching!

Johnny Marlowe heard Janice's whisper, but he did not distinguish the words. The smaller of the two eggs was cracked, and even as he watched, the crack grew, radiated in spider-web fashion over the shell. In an instant a piece of shell fell loose and a tiny forefoot appeared, greenish and slippery, pulling at the break. The shell gave way, split open, and a creature not much bigger than a duckling crawled outward. For a moment it lay panting, then raised itself on wobbly hind feet and stared upward at them with tiny red eyes.

IT was a dinosaur, but was the infant of no species Marlowe had ever heard of. It stood upright, like the Tyrannosaurus and others, balancing itself with its tail. But its head was grotesquely disproportionate to its body, and the upraised forepaws were as handlike as an ape's, despite all the claws on the end of them.

"Johnny, what is it?" Janice breathed.

"I don't know, I don't know," he said, almost to himself. "It's as different from ordinary dinosaurs as man is from monkeys. It—"

"Johnny!" The word was a scream. "Look out!"

It was her pull that dragged him backward, even as the floor tilted beneath them. Johnny caught himself against the opposite wall, while a corner of the building, directly above the spot he had been standing, crashed inward. The glass cubicles holding the eggs were smashed beneath the cement chunks. The crystal globes that gave warmth and beneficial rays went black. A tiny, shrill whistle wailed out and was cut short.

"Johnny!" Janice said urgently. "Come on. The whole building is going to collapse in a minute. We've got to get outside."

She tugged at him, but a sound, a low, questioning grunt, from the far end of the room, had attracted the young paleontologist's attention. Down there was a desk, and filing cabinets. And beyond the desk a low, circular concrete wall, like a well coping, above which bright lights still flickered into spasmodic brilliance.

Disregarding the swaying of the walls and the cement dust that filled the air, Johnny Marlowe stumbled down to Steck Davolio's desk. Beyond it, set in a niche against the wall, he had a glimpse of what looked like great rectangular trays from a trunk. The topmost had a sliding lid, which was partially open. Within, neatly nested in a material that looked like colorless wax or very thick gelatine, were row on row of rounded objects.

But, to get to them, Johnny had to go around the circular cement wall set into the floor, and he never reached them. For the wall was the coping of a well-like shaft sunk eight feet into the soil beneath the building, with cement sides and bottom. And in the well-prison, a creature stood upright, looking up at him and making a series of grunting sounds with definite modulations.

It was an adult member of the species of which they had just seen an infant hatch—only to die again. Its forefeet rested against the cement, as if it strove to claw its way upward to freedom. And in the large, snakelike head two great, unwinking eyes stared at them piercingly.

There was intelligence in those eyes—eon-old, time-wise intelligence and dignity. Those eyes stared probingly at Johnny, and he felt as though he were being studied on a microscope's slide.

"Johnny!" It was Janice at his elbow again, and she had not seen the creature Steck Davolio kept so carefully imprisoned where he could always watch it. "Johnny, you've got to come! The walls can't stay up much longer. Uncle's outside. Please, Johnny, please!"

She was almost sobbing in her anxiety. Johnny Marlowe knew she was right. They had to go, no matter what wonders went uninvestigated. Already there was a great crack running down the concrete wall of the well that imprisoned the curious reptile beneath him, and the creature was inserting its claws tentatively into the crevice. The next shock would bring the walls down.

Johnny turned, and with Janice's

hand in his, fled for the door, while behind them the lights flared up and down in a mad shadow dance of impending death.

They stumbled out into the wan sunshine where Nickering was waiting. He must have broken open one of the cubicles and snatched up the creature within, for Johnny saw that he had the tiny Brontosaurus clutched to his chest.

Then Steck Davolio returned.

CHAPTER V

The Time Capsule

HE burst out of the nearby jungle, blood streaming down his face, his clothing half ripped from him. He still held his rifle, but the stock had been shattered by some prodigious blow. He tottered as he came toward them, and recovered himself to stand, swaying weakly.

"Killed him," Davolio gasped, no recognition of them in his bloodshot eyes. "Got him—in the eye. Only place vulnerable. Shouldn't have let—the Tyrants grow. Too dangerous. Others—harmless. All but one—*Him*."

He choked, and spat out blood.

"Compared to Him, the Tyrant's a puppy. Because He's intelligent. Imagine it! An intelligent reptile out

—of the past! What a sensation—if I can keep Him—caged. Wait till I spring—all this—on the world. Make millions—beside the glory—"

The low grunt behind him spun him about. Within the doorway, the creature that had been imprisoned stood now, blinking at the outside light. On its hind legs, it stood higher than a man, and its great horny jaws were agape with purposeful anger.

"No!" screamed the dazed Davolio frantically. "You can't get free! I won't let you! You'll free the others. You'll revive them! Go back! Go back!"

He lifted his shattered rifle and fired. The creature within gave an answering bellow and fell back, one forepaw clawing at its neck where the bullet had entered. The injured scientist ran to the doorway and plunged in. They heard another rifle shot. Then, with the ground trembling beneath their feet, the building collapsed in on itself and was just a mass of wreckage in which something for an instant seemed to stir, then was still.

There was horror in Johnny's eyes, and in Janice's. But Nickering, staggering beneath the weight of the squealing Brontosaurus clutched to his chest, was already running toward the high ground from which they had come.

"Follow him," Marlowe cried.
[Turn page]

Private Notes from Mrs. M--'s Diary



3 Slept like a top all night. Ex-Lax worked fine this morning and didn't upset me a bit. Headache's all gone now and I feel bright as a lark.



1 Suffered all day with a terrible headache. Felt dull, tired and out of sorts. Remembered that I needed a laxative and decided my headache was due to that.



2 Took an Ex-Lax tablet before going to bed. It tasted swell—just like a piece of fine chocolate.

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"We've got to reach high ground. The water's pouring in. See, the whole swamp is under. And we may get a tidal wave."

They ran as they had never run before, like people in a dream. Half the herbivorous dinosaurs were gone—swallowed, perhaps, by the rising water. Three or four had been killed by the fear-maddened Tyrannosaurus that had escaped to run amuck among them. The others were standing dazedly where they were, in the path of the rising flood, as if too stupefied to make any move to save themselves.

And then Johnny saw the Tyrannosaurus.

Their movement had attracted its eye. Wheeling from its last victim, a peaceful Corythosaurus, it charged toward them with the speed of a running man.

Somehow, Johnny still had his rifle. Instinctive reflex must have kept it clutched in his hand. Now, as Nickering and Janice ran on, the same reflect brought the weapon to his shoulder. Ingrained skill, secured during ROTC rifle practice in his college days, was suddenly aroused from dormancy.

He fired three times. The first bullet he could see splash harmlessly on the charging monster's snout. The second caught the corner of one mean little eye. The third sped directly into the organ.

THEN, knowing he had made a shot dead into what brain the great lizard had, Johnny dropped the gun and raced after the others. In a hundred yards, halfway up the slope toward the sheltering jungle, he caught up with them. Venturing a glance back, he almost stopped in frozen astonishment. The Tyrannosaurus still pursued them. With a bullet in its brain! Marlowe knew he hadn't missed, but still it was coming on!

There was nothing to do but run. The bulk of the creature made great speed impossible for it, but as they gaspingly stumbled uphill, it was gaining on them. Its breath was a whistling scream at their heels as they gained the edge of the trees.

"Janice!" Marlowe sobbed. "Mr. Nickering! Hide in the trees! Maybe—"

The crash behind them as the monster toppled and fell, somersaulting to a stop at the very base of the first tree, spun them about. And then they saw that the chase was over. One last convulsive kick, one great whiplash of its tail, and Tyrannosaurus was dead. Extinct for the second time in Earth's history—

"Of course!" Johnny Marlowe exclaimed, in almost hysterical relief. "It didn't know it was dead. Its nervous organization is so undeveloped, it took a minute to realize it had been killed. A whole minute!"

THEY had no time to linger. Below them the blue water was rising swiftly to fill the whole valley. All the dinosaurs had been engulfed except the great Brontosaurus, whose heads still projected above the tide, mournfully swaying back and forth. And as the three turned, the lowing bellow of the last dinosaurs was the only sound in their ears.

Still hurrying, but moving more slowly, they pushed through the jungle growth to the spot where their boat had been tied. And there they stopped and stared, in blank, helpless dismay. For the boat was gone, and the very inlet in which it had been tied was gone, beneath the ever rising water that crawled closer to the tops of the rocks at their feet even as they watched.

"Gone!" Harrison Nickering choked. "The boat's gone. Davolio's gone. The dinosaurs are gone. Everything—gone!"

His face was a mushroom gray, and his eyes wild. He relaxed his grip, and the Brontosaurus in his arms struggled free, dropped to the rocks, and scampered off into the jungle.

"Gone," Nickering repeated in a shrill tone, his face empty. "They're all gone."

"Johnny," Janice breathed, "what can we do? What chance have we?"

Johnny Marlowe shook his head. "None," he told her, honestly. "The island is subsiding, steadily but certainly. Even if it stops before it's

fully submerged, there's always a following tidal wave. We have an hour, maybe. After that—"

He didn't finish, but she understood. She clung to him, but from weariness, not from fear, and he put an arm about her to steady her.

"Now that it doesn't matter much, I think I know the answers," he told her, hoping to distract her from what must soon happen by talking. "Not all, but some. About what must have been in that hole in the Colorado cliff, for instance. It was a cache, Janice, a repository of the past. You were

back to Davolio's camp. I saw them—inside his laboratory.

"Some of them still held the eggs they've guarded so many million of years. Imbedded in a jelly of some kind—nutrient, life-preserving, perhaps. I don't know how. But it's the only answer. Placed there eons ago, deliberately, in the hopes that some day intelligent beings would find them and know how to waken them from their long sleep. Waken the past itself to life."

"But why, Johnny?" the girl asked. "And by whom? Do you mean—"

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right in comparing it to a grave, because in a way it was—a tomb for time itself. Only, a tomb out of which time meant to rise again."

The girl turned toward him.

"I don't think I quite understand, Johnny," she admitted. "A repository for what?"

"For life!" Johnny told her tensely, himself forgetting their present danger in the excitement which possessed him as he felt more and more parts of the puzzle fitting into place in his mind. "For scores, perhaps hundreds, of eggs of the great dinosaurs, and other creatures of the Age of Reptiles. Janice, those traylike containers the guide said he helped carry

"It's the only possible answer!" Johnny Marlowe told her, his voice husky. "There *had* to be intelligent life then, in spite of every belief we've ever had, to have accomplished it. Our knowledge of the world back in the Mesozoic and the Cenozoic barely scratches the surface. There must have been scores of life-forms that left no fossil remains. And one of them must have been—had to be!—intelligent!"

"Janice! That creature you saw hatching! It was a bigger one that escaped that Davolio was trying to kill when he died. Remember what he said—that it was intelligent? That it would revive the others, if given the chance?"

"That was the truth. Think, Janice. You know your paleontology as well as I do. You know that the great reptiles rose and flourished and died, and the reasons why they died are obscure. Nevertheless, only a few degenerate descendants remain to remind us of them. Life-forms, all through the Earth's history, have risen and then become extinct without apparent cause. Even today certain races of men are dying out, for no tangible reason. Sometimes, against all logic, creatures superbly fitted for their environment have failed to survive.

"We know the Age of Reptiles came to an end, inexorably, though we don't exactly know why. Suppose—suppose that an intelligent reptile had evolved, and found itself doomed to extinction with all its unintelligent brothers by the slow, relentless decree of nature? And suppose that, summoning all its knowledge and gambling desperately, it left behind it a clutch of its own eggs, so prepared as to survive the passage of millennia and hatch again at some future date? And with them it left eggs of specimens of other reptile forms then roving the world—either to raise as future food, or perhaps to give any intelligent scientists who might stumble on the eggs material to work on to learn their secret.

"That would explain so many things! The radium in the cliff, for instance! It may have had some function in providing the infinitesimal amounts of energy required to keep the spark of life burning. Or it may have been a guide mark, easily detectable by intelligent beings with instruments such as the Geiger-Mueller counter. Because there may have been more than one cache of eggs. There may be many others, scattered through the Earth, waiting for chance discovery, where the past lies sleeping and hoping to awake!"

"Johnny!" Janice stared up at him, wide-eyed with wonder. "Then—it was really a Time Capsule, wasn't it, out of the past! A Time Capsule, holding not pictures and objects and books to tell about life then, but that life itself!"

"Exactly," Johnny nodded. "Whether as a heritage to the future, or as a desperate attempt to forestall the decrees of fate, we'll never be quite sure. And chance led Davolio to that Time Capsule. After that, everything that happened was inevitable. He guessed the secret. What followed sprang out of his character. Another scientist would have revealed his find to the world, invited the cooperation of every scientist of note in working on it. But Davolio, because he was bitter and resentful, wanted to humiliate a scientific world that had cast him out. He sought solitude here where the natural conditions suited his project and there was no chance of being intruded upon.

"And here he almost brought the past to life. Almost! But because he chose this spot—"

"Johnny, Johnny," Janice whispered, "it had to be. It had to happen like this. Remember what he said himself, that day in the museum? That once Nature has killed off a species, she never gives it a second chance? And she had killed these. They had to stay dead. She's not interested in the past. Only in the future. And now, when the past tried to rise, she prevented it. I'm sure of that. Even if it isn't logic. Even if it does sound feminine and everything!"

JOHNNY MARLOWE'S arm tightened about her. The water was lapping about their feet and his eyes, scanning the horizon as he talked, had seen what he dreaded.

"Brace yourself, Jan," he said quietly. "It's time to say good-by. I can see the tidal wave out there now—way out, near the horizon. And when it gets here—"

And then his words were drowned out by the roar above them, as their seaplane circled overhead and dropped to the choppy surface of the sea.

It taxied up, and the pilot greeted them. Shaken with relief at the unexpected reprieve from death they clambered onto the wing and into the cabin.

They swooped upward toward the sky. In a few swift sentences the pilot explained that when the earth shock

reached the village where they had left him, he had waited anxiously for a time; then, becoming increasingly fearful for their safety, he had taken off to come for them.

Suddenly, below them a great frothing wall of water rolled inward and over the doomed island they had just quitted. Johnny Marlowe, face pressed to the cabin window, stared downward. Perhaps it was as the girl in the circle of his arm, asleep from sheer fatigue and relief, had said. Nature was not interested in the past,

only in the future. And maybe she had reached out now to enforce her immutable edict that that which has died may not live again.

Perhaps it could not have happened differently. But as Johnny Marlowe stared down at the chaos of tossing water where time had sunk back into its grave after struggling so briefly to emerge, on his face, as he thought of all the knowledge snatched away after being so nearly in mankind's grasp, there was imprinted a shadow of infinite regret.

COMING NEXT MONTH

THE GOLDEN BARRIER

A Complete Novelet of an Atomic Tyrant

By G. T. FLEMING-ROBERTS

PLUS MANY OTHER NOVELETS AND STORIES

Men with tough beards—tender skin!
Use these new Thin Gillettes—and grin!
You look well-groomed—shave in a flash.
At four for ten you save real cash!



Top quality at
rock-bottom price

4 for 10¢
8 for 19¢

The Thin Gillette Blade Is Produced By The Maker Of The Famous Gillette Blue Blade

CALLING ALL MARTIANS!

By WILLY LEY

World-Famous Science Writer

Can We Communicate with the Crimson World? Science Says Yes—if We Can Invent the Proper Language!

MAKE way for the “manhunters” of science—the astronomers! For the telescopic sleuths have trained the giant eyes of their instruments at all of our eight planetary neighbors, searching for signs of life and mankind on some alien world. And, after careful analysis of all the eight planetary suspects circling the solar orb, astronomers

on the red planet. It has proved that Mars has an atmosphere and vegetation, not to mention the controversial man-made “canals.” Kirchhoff’s and Bunsen’s spectroscope have proved that all the chemical elements necessary to foster life can be found on the crimson world.

And the Arrhenius theory of spore radiation provides reasonable basis to assume that if living cells of organic matter ever drifted to Mars—and why couldn’t they have?—life as we know it may have ensued. Even one single living cell might have been the spark necessary to promote intelligent life.

Such a belief is not a new one, by any means, and has been shared by the astronomers of years ago. The theories about the origin of the Solar System then in vogue claimed that Mars was older than Earth. Even if this theory should be wrong it is obvious that Mars, being smaller than Earth, has therefore aged more rapidly. Evolution on the red planet, therefore, if along similar lines, must have progressed at least as far as on Earth, probably farther. The Martians, therefore, should be more advanced than Earthmen. So spoke the scientists of decades ago.

Why Martians Don't Land

WHY then, ask some, have Martians never visited Earth? There are many answers to explain the negligence of the Martians. Either interplanetary travel is so difficult that it is impossible even to them. Or they had visited Earth when man was still an ape and, underesti-



Willy Ley

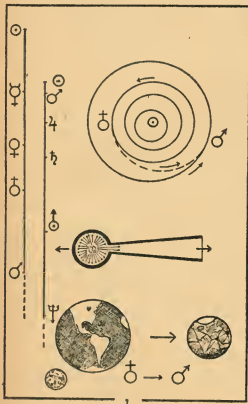
have weighed the evidence and reached an inevitable verdict. Mars is guilty—of harboring life!

There are various reasons for this attitude. The telescope has shown that there are continents and oceans

imating the tempo of terrestrial evolution, did not think it worthwhile to return.

Or the Martians might have scientific objections for not attempting a voyage to the Earth. They might consider the gravity of Earth too powerful to allow life. The pressure of our atmosphere might be regarded as too high to permit the evolution of intelligent beings. Or they might have a philosophy teaching that the whole Universe existed for the sake of Mars, like the egocentric theory of the Middle Ages.

At any event, they have to be shown that there is sentient life on Earth. Maybe it requires just some such event to decide the arguments on Mars and make them hasten the completion of their space ships. Perhaps their code of honor prevents them from visiting



At left the solar system, drawn to scale, reaching from Sun to Mars, then at a reduced scale the solar system from Sun to Neptune. On top a view of the orbits of the inner planets, the astronomical symbols, having been used at left, explain which planets are meant.

Underneath a schematized rocket motor to explain the means of space travel and then again pictures of Earth and Mars with their satellites.



A GREAT MATHEMATICIAN'S DREAM

HOW Earth would look at about medium distance as seen from Mars through a very powerful telescope.

The "mathematical forest" in Siberia, although covering many hundreds of square miles looks unimportant in the picture but would not escape the vigilance of astronomers.

another race without having received an invitation first.

The problem resolves itself into one which makes it imperative that the people of Earth literally cry out to the inhabitants of Mars, assuring them that our globe is inhabited by a civilization. If we want interplanetary recognition, we must first inform the Martians that we harbor life. How? This problem is being discussed today, and it has been considered decades ago.

At first, early astronomers speculated whether the electrical illumination of Earth's great cities, viewed from another planet, might not be regarded by Martian inhabitants as proof positive that intelligent life exists on our sphere.

This theory was discussed and argued—and finally discarded. Earth's scientists pointed out that the Martian telescopes were probably not much better than our own. Assuming this

to be the case, such great cities as London, Paris and New York would not radiate enough light to be visible even in a clear night. Besides, the scientists of Mars might regard their occasional observations of the tiny pinpoints of light that might seep through as volcanic eruptions.

Astronomers got together in a huddle, finally agreed on one point. Man might eventually send a letter to the Martians. But, for his mode of communication, he had to invent a new language—a language that would convince an intelligent race of beings that the message it conveyed was man-made, not the result of a natural phenomenon! And the message had to be seen without difficulty.

Terrestrial Signboard

THUS started the barrage of scientific suggestions for possible methods of interplanetary communication. Gauss, the great mathematician, studied the problem carefully. Finally he had an idea.

Why not use the vast Siberian tundra as a giant terrestrial signboard? Viewed from an elevation, forests show dark against the lighter, frozen background of the tundra. We had but to plant forests in those tundras, forests so laid out that they formed geometrical patterns. The proper planting of forests, Gauss declared, could form a triangle with three squares demonstrating the theorem of Pythagoras. Such an artificial symbol would offer certain evidence to the Martians that their planetary neighbors were intelligent. At the very least, it would prove that we knew geometry. The Martians would deduce that this symbol was meant for them, because who plants forests in such a space-wasting pattern?

Gauss' proposal was well thought out and received very serious consideration, even in government circles. But it had one flaw. The message could not be read at night!

Illuminating the Sahara

THE astronomer, Littrow, in Vienna, had another suggestion to offer. It was premised on the fact that

Earth bears the same astronomical relation to Mars as Venus does to Earth. When we are closest to the Martians they see only our night side. A daylight sign constructed of Gauss' mathematical forests would be like a large and impressive billboard poorly illuminated, so that you see it only when you look for it and know where to look. To make the sign easily visible for the Martians it would have to be a luminous sign at night, illuminated at the time when the two planets are closest to each other on their respective orbits.

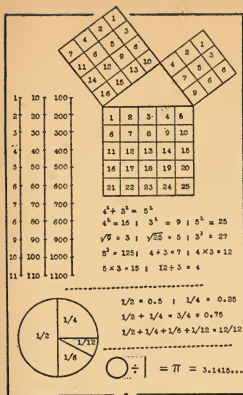
Littrow chose another signboard, the great Sahara desert. He suggested special equipment consisting of thousands of powerful lamps, mounted on cars so that different figures could be formed. During the first night those cars would be arranged to show, say a triangle. During the next day the cars would be rearranged to form a square during the second night, a circle during the third, then an ellipse, a parabola and other mathematical figures.

After awhile, we could start out with one dot and the figure "1," two dots and the figure "2," and so on. Being an astronomer himself, Littrow was able to judge the minimum size required so that the figures could still be distinguished. Twenty miles, he thought, would be sufficient.

If the Martians wanted to send a similar message to Earth they would have less trouble and less expense. Since we see their daylight side when the two planets are closest they would not require the use of lamps or searchlights to illuminate their signs. They could use mirrors to reflect the light received free of charge from the Sun.

Doing It with Mirrors

IT was probably this thought, of the use of mirrors, that gave rise to the most fantastic of all these plans. The Frenchman Charles Cross proposed a burning mirror, several hundred feet across and ground in such a way that its focal point would coincide with the surface of Mars at aphelion when Earth approaches perihelion. By means of this mirror Cross



Vertical columns of figures and a simple geometrical design explain the meaning and value of our symbols and show their application by means of a few simple examples which permit cross checking of the ideas formed by the reader.

After a few more pages of such simple examples and explanations the Martians should be familiar at least with terrestrial numbers and mathematics which, in connection with pictures permits one to convey practically every kind of information.

wanted to fuse the sand of Mars' deserts into large figures and symbols.

He forgot to mention, unfortunately, how he intended to convince the Martians that his heat ray attack was directed with perfectly peaceful intentions. And he also failed to explain such minor items like the job of constructing, grinding and polishing a mirror "a few hundred feet across."

Messages via Microscope

TO complete the history of these various proposals an idea propounded by a German biologist might be mentioned. To communicate with the Martians, he said, one may have to employ microscopic devices. Svante Arrhenius had taught that a grain of

dust, 0.0015 millimeters in diameter, placed on the orbit of Earth without any angular velocity of its own, would not fall toward the Sun.

Gravity and light pressure would just balance each other. If the grain were still smaller, the pressure exerted by the Sun's rays would prove more powerful than the gravitational attraction. The most efficient size, Arrhenius found, would be 0.00016 millimeters. A grain of dust of that size would drift away from the Sun at a rapid pace, reaching Mars in about three weeks. Now Mars exerts only gravitational attraction, but no light pressure worth mentioning, therefore those grains would settle down on Mars. And if these grains could be covered with mathematical symbols, the Martians might interpret them. . . . Which stunt is about as practical as engraving an encyclopedia on the head of a pin.

None of all these dreams survived the World War. Most of them were already forgotten in 1914. The belief in the existence of intelligent Martians had somehow faded. It is hard to say exactly why the belief dissipated. There exists no definite reason that makes the existence of Martians impossible. A race with a technological development equal to our own could exist on Mars. Most likely they could not thrive in large numbers, but they could manage to survive.

Today, the people of Earth are on the verge of inventing the space ship. While it is difficult and dangerous to forecast the time when a certain technological development will be made, it is fairly safe to say that the year 2040 will see the construction of a space ship capable of reaching Mars.

In all probability it will take much less than a century. But the point I want to make is that the Martians—if, as was always thought, their intelligence is at least equal to our own, and their civilization older than our own—should have invented space ships long ago. Therefore intelligent Martians, assuming that they exist, must either possess a mental attitude far removed from our thirst for knowledge and our quest of new lands. Or

else they have not progressed as far as we have.

Mars Expedition No. 1

BUT if, forty or sixty or a hundred years hence, Earth takes the initiative and a terrestrial space ship lands near *Lacus Solis*, the old communication problem begins anew.

The Martians that greet the first space ship from Earth cannot reasonably be expected to be perfect mind-readers. They may communicate among themselves by spoken words, but it would not be a language anybody is able to grasp quickly.

And if the Martians have another method of communication, no linguistic ability on the part of the Earthmen will be of any use.

The solution consists, evidently, in using written symbols. What the first expedition to Mars needs is a letter of introduction written in such a manner that it can be read and understood without any knowledge of human thought patterns. This sounds formidable, but it is only half as difficult as it may seem at first glance. Picture writing suggests itself.

And just as in the course of human history picture writing developed into writing by means of symbols, the pictures serving as a first introduction to the inhabitants of another planet can soon be replaced by symbols.

The first thing to be explained, of course, is the expedition's place of origin. The first page of the letter to the Martians must, therefore, convey some astronomical information. If the Martians are reasonably familiar with the Solar System, they will experience no difficulties in understanding the first page of the letter. It shows a diagram of the inner planet's orbits, Mars being the outermost, of reasons of space.

Earth and Mars are connected by a dotted curve, the orbit of the space ship. The direction of the flight is indicated by an arrow, the first symbol to be introduced. To us arrows indicate directions, but that symbol might be meaningless to a Martian. Or it might have another meaning—it may mean death, destruction or war in

general, it may mean lightning or rain and therefore water in general or it may mean a dozen other things.

But repetition of that symbol under various circumstances (especially those arrows attached to the orbits of the planets) will soon make its terrestrial meaning clear. The orbit of Mars, incidentally, is conspicuous because of its high degree of eccentricity. But if there should be difficulties, the two lines at the left, showing the average distances of the planets, should make it clear which symbol means which planet.

Now the Martians may not know Mercury. In that case the diagrams would be misleading. To avoid such a misunderstanding it would only be necessary to attach another page with photographs of the planets, each "named" by means of its astronomical symbol. Saturn is a big asset in that respect. It would be recognized immediately. From there on it is easy to count both ways, Sunward and away from the Sun, starting with Saturn.

The possibility that the visible spectrum of a Martian's eyes and our visible spectrum are not the same is certainly to be considered, but it does not matter much. If that letter is printed on white cardboard with the blackest black chemists can produce, the figures will show by absence of light; and it is rather unimportant whether green, red, infra-red or ultra-violet light is *absent*.

Following the diagrams of the Solar System is a simplified drawing of a rocket motor and of the reaction principle. It is to explain the means of motion of the ship. Finally the keynote "Earth to Mars" is repeated again. By that time the Martians might well wonder how dumb the Earthmen think they are. Then follows the introduction of the most important of all symbols, the figures and the symbols used to express arithmetical operations.

Vertical columns of figures and a simple geometrical design explain the value of our symbols. At the same time they show that our numerals are based on the decimal system and the arrangement of the figures in the little

squares also shows that we write from left to right. The simple operations explained over and over again serve as a means of cross-checking the value of any given symbols, in case there should be uncertainties due to circumstances we cannot guess.

After a few more pages of such simple examples and explanations, the Martians should be familiar with numerals used on Earth. And numbers and pictures in combination can convey practically any information.

A Message to the Future

THE remainder of that letter to the Martians was "written" more than three years ago. I am referring to the Time Capsule that was buried on the site of the New York World's Fair, destined to be opened by archeologists 5,000 years hence. The problem there was almost the same. The contents of the Time Capsule were designed for minds totally unfamiliar with our present civilization. As may be remembered, the films filling most of the space in the Time Capsule also start out with linguistic explanations.

The differences between a message to the future and a message to the Martians are mainly gradual. One has to work with even more basic assumptions in the case of the Martians. But as soon as all the preliminary explanations are finished, the story is exactly the same in both cases. And for this reason it will be easy to prepare an intelligible "letter of introduction."

But in the meantime the main worry is not any more how to get in touch with the Martians. That idea has been given up long ago. In about 1909 a wealthy French lady, Madame Gusman, handed the sum of 100,000 gold francs to the trustees of the French Academy of Sciences, stipulating that this money should be given as "Prix Gusman" to the man who opened the way to Mars. But that stipulation already indicated the change of attitude that had taken place. It did not speak any more about communicating with the Martians. It stated the case clearly as we understand it nowadays. It spoke about getting to Mars. And that's our big job. We have to call on the Martians!

WAS MY FACE RED

when she dodged my kiss?

Don't Offend...Use Sen-Sen

BREATH SWEETENER...DELIGHTFUL CONFECTION

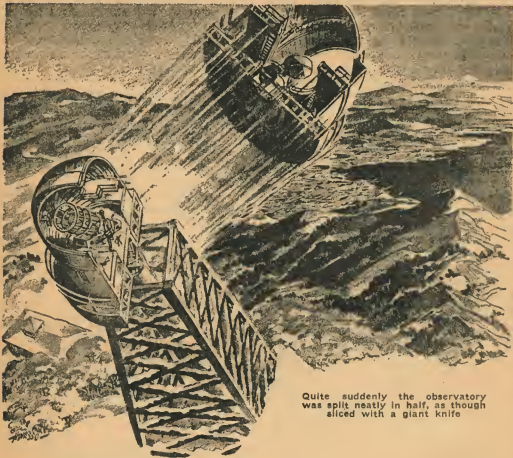
SEN-SEN
FOR THE BREATH
5¢
THROAT PASTE
VALUABLE TO
SINGERS AND SPEAKERS

DENTAL DECAY
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LIQUOR
UPSET STOMACH

REVERSE ATOM

By HENRY KUTTNER

Author of "Hollywood on the Moon," "When the Earth Lived," etc.



Quite suddenly the observatory was split neatly in half, as though sliced with a giant knife

A Blazing Riddle Out of the Cosmic Gulfs Poses a Problem That Men Must Answer!

IT WAS a flaming enigma from the cosmic gulfs beyond the Solar System, a vast, coldly luminous comet that drove inexorably Sunward. No spectroscope could analyze it. Some element entirely new to man's experience was flashing past Pluto, beyond the great planets, on a path luckily above the plane of the ecliptic so that only little Mercury felt the alien breath of the strange visitant. Mercury—and the Sun. For the comet's tail, in defiance of all laws of logic and science, stretched Sun-

ward, seemingly dragging that glowing, incredible gas into the heart of the Sun, where it came finally to rest.

And simultaneously solar radiation began swiftly to wane.

Max Molin, the Swiss astrophysicist, was completing his series of lectures at a famous English college when this was happening. The auditorium was warm, though outside snow was falling. It was late June.

The Swiss was striding up and down the platform, blowing out his lips occasionally with a gusty, impa-

tient breath. On his chunky body hung an ill-fitting, gaudy golf suit. His coarse, craggy face looked as though it had been hacked out of weathered brown granite.

He stopped on the edge of the platform and purred:

"This will be my last lecture, gentlemen. Your classes are over forever. No doubt that pleases you, eh? Well, when you're cowering in an insulated basement trying to get warm, chewing your shoes because there's nothing else to eat, you'll remember with pleasure this lecture series!

"You don't know what I'm talking about, perhaps," Molin went on. "Let me explain. The Sun is constantly creating sub-atomic energy. You will not deny that, I suppose. Now there is a delicate balance in this Sun of ours, as in any other star. The interior of it is composed of atoms under intense pressure. Such pressure that their outer electrons are being constantly knocked off, and energy being thus created. Now there are ether waves also in the Sun's interior—all sorts, light waves, X-rays, Gamma rays. The atomic excitation in the Sun's heart forces out these ether waves."

Molin made an expansive gesture with his long arms.

"See? That is solar radiation. But if all these ether waves escaped into space they'd wither the Earth like a—a—" He groped vainly for the right word, gave it up. "Anyway, the waves can't get through. The atoms of the outside layers of the Sun provide a barrier—a mesh—through which these waves can leak only very slowly. Until lately, that has been the situation."

NOBODY was asleep now. This lecture was unusual, even for the unpredictable Max Molin. The astrophysicist hurried on.

"A comet recently collided with the Sun. Now the unusual thing about this comet was that it contained an element entirely new to us. It collided with the Sun, diffused itself, and has wrapped itself like a blanket around our star.

"Now how could it do this? Its

atomic weight is less than that of calcium, which is light enough to float on the Sun's chromosphere, and at the same time the atomic nucleus is very large indeed—larger than that of lead. You all know that lead will stop many ether waves. Well, this new element in the comet forms an opaque blanket around the Sun, a blanket that absorbs solar radiation almost entirely and prevents light and heat from reaching the Earth.

"So," Molin said pleasantly, "in a short time all plant and animal life will die. Artificial ultra-violet light may help, but not for long. Solar radiation is necessary to grow food and human beings. Man may prolong his life for a while by migrating to Mercury, but I doubt it, for the atomic blanket on the Sun is very thick. We can't save ourselves by seeking another Solar System, for our spaceships are as yet incapable of long interstellar voyages. And so, my young friends, I finish my last lecture and take the opportunity of bidding you a very pleasant death."

The astrophysicist bowed, marched from the dais and went to his office, where he opened a can of beer. Gulping it, he mused, "I owed them that. For years I've endured their idiotic faces gaping at me, while I parroted other scientists. Well, if I had not lectured I would have starved and gone without beer."

The craggy face was not harsh now. Once Molin had dreamed of a laboratory, equipped with the apparatus he loved, where he could follow out his theories. And he had never quite forgotten how to dream. In dreams he could forget what was to happen to the world.

One of the most obvious things that happened was that the world grew dark. Crops were blighted. Wheat and corn failed, and cattle and sheep began to die. Starvation hovered like a chill spectre in the drab twilight of a frozen world. . . .

IT IS a seemingly unrelated fact that Peter Joslyn's tenth birthday came four months after Molin's delivery of his last lecture. Peter's father,

Dr. Howard Joslyn, famous for his quantum experiments, gave the boy a model spaceship.

On one of those ominously dark noons, young Peter was sending the toy whirling around the penthouse, and occasionally the boy glanced aside at the tired white face of his father, and at the man who was with him.

"I knew you'd come," Joslyn was saying, his grim features softening briefly as he put his hand on Max Molin's arm. "An hour—that was quick."

"Stratosphere ships are fast," Molin grunted. "Why send for me, though? Other men are more capable—"

"Better known, maybe—but I remember those theories you had when I knew you in Vienna. Our work has been along similar lines, and I need someone who can understand quickly. Most of the governments have given their approval to my plan—"

Max suddenly glanced down at a package under his arm. He swung about, bellowed at the boy.

"Here, you monkey—catch!" He flung the parcel, and Peter caught it deftly. Eagerly he unwrapped a transparent sphere, a suit of shimmering silver fabric. It was an imitation spacesuit, and Peter's eyes lighted up with pleasure.

"Thanks a lot!"

"Come along, Max," Joslyn said. "You need some beer. I haven't forgotten your liking for it."

"Yes, yes," Molin rumbled, following the other. "But this work of yours, Howard—you wired me you had a cure for the solar blanket?"

He took the foaming glass Joslyn handed him.

"Right, Max. Although my theory upsets a rather well known law. The conservation of energy—"

Molin blew foam from his lips.

"So! Those foolish dreams we had in Vienna have materialized, eh?"

"They weren't so foolish. Not after I carried them out to the logical conclusion. The secret's in potential energy. You know the rule—'total amount of work done on all parts of a system equals the total sum of the kinetic and potential energies of all its parts.' In other words, you can't

get more energy out of something than you've put into it."

"Well?"

"It's common knowledge that electrons can be thrown from their normal orbits by external stimulus—temperature change, for example. And when an electron automatically returns to an orbit of lower energy, we get a quantum, a radiation that shows the energy-change that has taken place. In the quantum I've found the key."

Molin gulped the rest of his beer, poured more. His sharp eyes watched Joslyn unblinkingly.

"The Universe is gradually running down, Max, losing its energy. We know that; we take it for granted. Sub-atomic energy is released and converted—scattered, because it can't be lost—changed to light and heat and so on. Well, my theory is simply this: a certain type of artificially-created atom can release more energy than it apparently possesses!"

THE Swiss whistled softly.

"It's crazy, Howard—you know that. Any scientist in the world would laugh at you. I'd laugh myself, except that my early experiments pointed in the same direction, to the fact that there's some secret reservoir of power in the atom—in the nucleus, maybe, or even the quanta. But it's unbelievable."

"I've proved my case on paper."

"So. But didn't you find an x somewhere—an unknown factor?"

"Yes," Joslyn said, and his gaunt face was puzzled. "Something I can't explain, that crept into my figures somehow. But it has no effect on the calculations. I know they're accurate."

"Have you more beer? It helps me think. . . . Thanks. Well, if you can do this impossible thing—what then?"

"This 'reverse atom' of mine can reverse atoms surrounding it, just as a grain of gunpowder sets off other grains. My plan is to create such a thing and send it by spaceship into the Sun, where it will transmute the Sun's atoms into ones similar to itself."

"And if you do that, won't the increased radiation kill everything on Earth?"

"Curiously enough, no. The damping blanket the comet left will be destroyed, and a tremendous amount of energy will be liberated, but chiefly in harmless etheric waves. Max!"—Joslyn's voice was suddenly tense—"I've got to take the chance! It's our only one. There may be holes in my figures, but I've checked and rechecked and the results seem sound and safe. If the governments are satisfied, that's enough, isn't it?"

"At worst, it's a quick death," Molin grunted, with a glance at the door. "You're thinking of your son."

"And of the human race," Joslyn amended. "Unless we can destroy the solar blanket, Earth's doomed. In a few generations our power will give out, we'll retrogress and become savages. All the culture and science of civilization will die. . . ."

"I'm with you," Molin rumbled, "on one condition. I cannot work when I'm thirsty. There must be plenty of beer."

FOUR more months passed. A spaceship, the *Newtonia*, rested at the Washington, D. C., spaceport, ready to take off. Terry Webb, its pilot, couldn't help getting a queer, tight feeling in his throat as he swung through the circular doorway. This wasn't his first cruise beyond the atmosphere. Despite his youth, Webb was an experienced pilot, or he'd never have been chosen for this job. Special motors had been installed in the ship, engines that would pour a flood of power into the gravity plates—enough power to enable the *Newtonia* to pull free from the Sun's grip. For Webb's orders were to take his craft inside the orbit of Mercury, closer to the Sun than was really safe.

The youngster shrugged broad shoulders as he glanced around the little control room, checking his instruments. He shivered in the icy wind that knifed from outside. In ordinary times a huge crowd would have been at the spaceport, but only a few hardy souls had ventured out

into the fringed November afternoon.

Webb ran tanned fingers through a mop of tousled yellow hair and reached for a cigarette. After the ship was sealed he could do little smoking, for the air supply wasn't inexhaustible. Now, glancing up, he saw Joe McGowan, the telecaster, hurrying toward him, chewing on an incredibly long and black cigar.

McGowan, one of the shrewdest newshounds on Globe Press' payroll, was short and dark, with a round pudgy face and squinting pale eyes.

"All ready, Terry?" he asked excitedly.

"Yeah," Webb said. "Molin and Joslyn are in their lab." He pressed a button that closed the port. McGowan straddled a chair, flipped a microphone into his hand, and chattered:

"Just about to take off, folks! You've already seen Dr. Joslyn and Max Molin on your television screens, as well as Terry Webb, our pilot. This is my last direct broadcast. After we head Sunward I'll keep sending, but radio waves can't get through the Heavieside layer, you know. Globe Press has three ships stationed beyond the layer, transmitting my messages by visual signals down to the observatories closest to them. This is remote control with a vengeance! Here it comes!"

Webb fingered the switchboard. With no sense of motion, the *Newtonia* floated up as power raced through the gravity plates. It was difficult to judge the force of the compensating gravity field necessary within the ship, and so for a moment the passengers were weightless, till Webb's experienced fingers adjusted matters.

"All power's on, folks," McGowan yelled, his unlighted cigar dancing. "We're driving right at the Sun. Won't be long before we get close enough for the big experiment. Considering the distance—it isn't a five minute walk, you know."

Over sixty million miles! Webb chuckled; despite the tremendous acceleration the gravity plates supplied, it would be a fairly long trip. But

already they were far beyond Earth's atmosphere. He sobered suddenly as he remembered the possibility of failure. Joslyn had been explicit on that point. And Webb didn't want to die just yet, for he was to be married in two months. But no pilot on Earth would have turned down the chance to command the *Newtonia*.

ON EARTH a few days later, in Joslyn's penthouse apartment, Peter squatted by the televisor. Lounging in a nearby chair was Mahaffey, Joslyn's chauffeur, who was utterly devoted to his employer and his employer's son. From the televisor came the announcer's voice, relaying McGowan's messages.

"We're swinging around the Sun, in an orbit well inside Mercury. The experiment's coming along fine. Joslyn's reverse atom is due to hit the Sun any minute now. As I said, it was released just before the process was complete—the whole auxiliary cabin went with it, because we didn't know how fast the reversal process might spread. Terry's an expert pilot. He got rid of the excess baggage at just the right moment. All three men are with me now in the control cabin. Molin has a spectroscope set up. And we're heading back to Earth—wait a minute! The atom should have hit the chromosphere by now."

Peter glanced up at Mahaffey.

"That happened quite a while ago," he observed. "Radio waves travel through space at the rate of—uh—" But his memory failed him at that point, and he turned to the televisor again. Mahaffey grinned.

Meanwhile, in space, the *Newtonia* gave a lurch. Molin stared in amazement at the spectroscope. He was flung to his knees as gravity was abruptly increased. All four men went down on the cushioned floor.

Terry Webb fought his way back to the instrument board. McGowan, flat on his back, still clutched the microphone and was shouting into it.

The ship began to whirl crazily. Webb battled the controls. He glared unbelievably at his instruments, let out a meaningless shout. Joslyn

lurched unsteadily to his side.

"They've gone crazy!" the pilot screamed. There was a grinding below rasping through the ship, from what source it was impossible to tell.

Without warning deathly quiet fell. Normal gravity was reestablished. The four men stared at each other.

Molin broke the silence.

"Power," he rumbled shakily. "It caught us—"

"What does it mean?" the telecaster asked. "What happened?"

"It's still happening," Molin said, gesturing toward the instruments. "We thought only the Sun's atoms would be reversed. But the atoms of space are being reversed—"

"Space—I thought—a void—" Webb managed to get out.

Joslyn's face was a haggard mask.

"There's about an atom to every square inch of interstellar space," he said, a curious horror in his eyes. "It's spreading, Max! It must be. If the void can't stop the reversal process, it'll spread out through the Solar System—the Galaxy!"

MCGOWAN gripped his arm. "But what'll happen?"

"God knows." The scientist made a futile gesture. "Too much energy—it may do anything, released like this. It may warp the framework of space itself."

"Listen," Webb said sharply. "You mean it'll cause trouble on Earth?" He was thinking of a girl in Washington—a girl he was going to marry.

"It may wreck Earth," Molin rumbled.

"Eh?" McGowan's eyes widened. "Listen, I've got a wife in Hollywood—"

"And I've a son in New York," Joslyn said with nervous harshness. "But there's nothing we can do. This energy will keep increasing—created out of nothing—"

The pilot jerked roughly at the controls.

"God Almighty, if anything happens to Stella!"

In the silence Molin spoke.

"I have no family. So I'm not afraid of death."

He was thinking of unleashed energy, an inconceivable Titan, spreading out from the Sun, catching Earth in its grip, flashing out at a speed that traversed light-years with incredible rapidity—pure energy, shaking the foundations of matter, warping and twisting physical laws insanely. . . .

In other places other men were thinking too. In Mount Wilson Observatory for example. A shining dome, built in 1985, perched atop a tall, snow-drifted scaffold of toughened steel. On one side, white mountains; on the other, steep slopes, the cities of Pasadena, Glendale, Los Angeles, and in the far distance the chill blue of the Pacific. Scientists, astronomers, Globe Press men under the great dome, watching for the signals from the ships beyond the stratosphere.

Quite suddenly the observatory was split neatly in half, as though sliced with a giant knife. One half of the huge hemisphere was lifted and hurled violently northward, rocketing through the atmosphere at a speed which instantly melted the snow which capped its top. A minute later the Gargantuan missile was dropped gently on the prairie six hundred miles away, approximately midway between Lake Tahoe and Reno. The half-observatory, incredibly, seemed undamaged. But every living thing within it had died, as though by a violent electric shock.

STELLA HART, the fiancée of Pilot Terry Webb, was fighting the icy wind that rushed along Pennsylvania Avenue. Washington was buried in snow. The Capitol's dome glistened whitely with it. Stella, a rather pretty girl of twenty, was shivering despite the old furs she hugged to her small figure.

Terry had wanted to buy her a new coat, but she wouldn't let him. They needed all the money they could get to buy that cottage in Maryland. But Terry had said that if he returned safely from this voyage, they'd never have to worry about money any more. He didn't realize, Stella thought, just how much she was worrying about

him now.

Televisors everywhere were blaring the latest reports from the *Newtonia*. Her nerves were rasped and raw from the strain. She marched doggedly along the icy street, trying to shut out from her mind the picture of Terry—so close, so terribly close to the Sun.

Gray daylight, and a cold wind blowing. A few hurrying dark figures in the distance, blacker blotches against the drab snow. The whine of an airship flashing invisibly past in the cloud-blanket overhead. And the snow sifting down softly, endlessly. . . .

There was a brittle, curiously penetrating snap, like the sound of a taut violin-string breaking. Simultaneously dozens of small points of fire sprang into existence in empty air, about a hundred yards from Stella. Strangely the snowflakes did not hide them from her. Little glowing specks of flame. They darted about in long, arcing curves, swinging, dancing.

WHAT were they? A moment before they had been living inhabitants of a white dwarf star, the Companion of Sirius. Unleashed energy, warping matter, had crinkled the fabric of space as a sheet of paper is crushed, had scooped up these flaming beings and deposited them neatly on Washington's Pennsylvania Avenue. Though they were alive, even the atomic structure of their brains was alien to that of human beings. Their reactions were disastrous.

They may have been puzzled, frightened, angry, or perhaps hungry. They danced among the snowflakes briefly, and then swung in widening spiral orbits, glimmering like tiny stars. Stella, watching them, did not at first realize that she was seeing anything more than an unusual electrical display. She felt a surge of fear only when one of the sparks brushed the stone wall of a building and brought the structure down in quick ruin.

How could this happen? Simple. The Companion of Sirius is of tremendous density. Living beings existing on the white dwarf's surface must be similarly compact in atomic

structure. As a man's finger brings down a house of cards, so the touch of the glowing star-point brought a ten-story office building crashing in destruction, collapsing upon itself, with a great, earth-shaking roar that drowned the victims' screams. The concussion knocked Stella down. She scrambled to her feet, the sleazy fur wrapped around her face, momentarily blinding her. She tore it free.

A cloud of dust was still billowing up, meeting the sliding rush of the snowflakes, luridly brightened by the streaking orbits of the stars as they raced faster and faster. Blocks and fragments of stone lay all around Stella, but, save for a shallow cut on one arm, she was miraculously unhurt. With panic tearing at her throat she turned, slipped, and went down in the slush. Quick footsteps sounded.

A man gripped her arm, jerking her roughly to her feet. Half dragging her, he rushed away from the scene of destruction. Now that the noise of the collapsed building had died, Washington was strangely silent.

Their breaths whooping, their throats raw, the two paused, looking back. Only a faint glow shone through the flickering veil the snow made. Stella glanced aside, saw that her rescuer was a short, pudgy man, with fogged gold-rimmed glasses and a bald spot that was speedily capped by snow.

From the distance came a crashing bellow of grinding masonry.

"War," the little man said vaguely. "Some new kind of bomb. I don't know—" Then his nostrils flared; there was sweat on his pink brow. "We've got to get out—eh? My wife and kids—they're in New York—"

Stella could not speak. Shuddering with cold and fear, she ran with her companion along Pennsylvania Avenue, goaded by the slow crescendo of sound that was rising to a world-shaking symphony of fear from doomed Washington.

"Where? Where can we—" she managed to gasp.

"My helicopter!"

They reached the landing platform,

not yet crowded with the refugees who would soon arrive. Stella had no relatives in Washington. She could not yet understand the full extent of the catastrophe, and she crouched in the cabin, watching her rescuer silently as he nervously worked the controls. The door was opened, and a man's unshaven face was thrust in. He cried something unintelligibly, and, despite the pilot's remonstrance, pushed into the cabin a squat, dumpy woman carrying a child in her arms.

"You take her, eh, meester? Maria—"

"Ramon!" The woman tried to pull him in. "You come too!"

"No—I mus' get my father—I fin' you after, Maria. An' the *mucha-cha*—"

A mob was pouring out on the platform. The helicopter drifted up. Below them a man stood waving, tears on his grimy, stubbled cheeks.

"*Vaya con Dios!*"

Stella, looking from the window, saw the platform suddenly split across the middle. The man was flung, a small black figure, into blinding clouds of chaos; flaming star-specks whirled into view. Thunder of ruin bellowed up. . . .

The pilot desperately battled air-currents. The squat Mexican woman screamed, huddled low, hugging her child till it began to cry with fright and pain.

"Carmelita—*muchacha*—*ohé, ohé!*" the woman sobbed.

Stella shivered, trying to understand what had happened, battling the cold, dark fear that was overwhelming her. Terry . . . Terry! Will I see you again? We can't die now, either of us. We've got to live. That cottage in Maryland. . . . God, God be merciful! Terry!

THE BIGGEST LITTLE CITY
IN THE WORLD, said the sign at the end of Virginia Street, Reno. The city hadn't changed much in a hundred years. The state capitol had been moved here from Carson city; bars and gambling establishments still thrived. So did Reno's most famous trade—divorces.

Iola McGowan, wife of the telecaster, had taken advantage of his absence to go to Reno and start divorce proceedings. She was an artificially luscious blonde, and she had been married to McGowan, her fourth husband, for almost a year. She felt she was getting in a rut.

So Iola, after an unpleasantly early visit to the courthouse, demolished a lamb chop and went for a stroll along Virginia Street, wondering how to pass the time. The man she had chosen as her next husband had been unfortunately detained in Hollywood working on a picture for Summit Studios, and so she was alone. Casting a glance at the snow-capped mountains to the west, she hastily turned into a comfortably warm establishment where the busy clicking of a Wheel of Fortune immediately intrigued her.

Even at that hour inveterate gamblers were busy, though the tourist trade wasn't due till evening. Iola found a seat next to a lean, good-looking fellow who was playing with a reckless disregard for consequences. He glanced at her with sleepy, appraising eyes as she placed a bet.

Maybe Reno wouldn't be so dull after all, Iola thought. The man was quite handsome.

"Place your bets," the attendant called. "All in—here she goes. . . ."

There was a faint snapping sound, strangely piercing. To an observer in an airplane, Reno would have looked exactly the same a half minute later. But actually it was considerably changed. Everybody had suffered. As a result of the tremendous energy that had been released, most of the inhabitants lived in a few seconds the span of decades. They grew old.

But on some of them the process was reversed. They got young. Automobiles crashed against lamp posts and into store-fronts, driven by wrinkled, toothless oldsters. The Governor, who happened to be in his office at the capitol building, was abruptly reduced from a florid, portly man of sixty to a small, chubby child who ignored a visiting committee of ranchers to play with the fountain pen he had been using. The ranchers

had their own troubles, however; they had become at least octogenarians, and four of them suddenly died of old age.

Iola was changing her mind about her neighbor's good looks. His face was too lean—why, it even had wrinkles in it. For heaven's sake! His face looked like a skull with withered parchment stretched over the bones, and a straggling white beard dangled almost to his lap. But she couldn't see him clearly. What was the matter? She lifted a trembling hand to rub her blurry eyes, and paused, transfixed, by the sight of the incredible claw attached to her arm. She screamed in a cracked voice. . . .

Then she caught sight of her face in a nearby mirror, and mercifully fainted.

IN Joslyn's penthouse, Mahaffey was fixing himself a Scotch and soda, listening to the televisior voice from the next room where Peter was. The kid was growing, Mahaffey thought. He could remember when young Pete was about knee-high to a grasshopper. Well, if he grew up like his old man it'd be okay. A swell guy, the doc.

A faint snapping noise sounded.

Peter called out, a note of panic in his voice: "Mahaffey! There's something—"

The chauffeur put his glass down and was through the doorway in a split second. His eyes bulged. The room had gone crazy!

It looked familiar enough—same chairs and tables, bookshelves and televisior—till you got to the end. But instead of the further wall there was only—something else! Mahaffey shook his head, blinking. His eyes hurt. Angles here—crazy looking colors—

Dr. Joslyn might have guessed that some utterly alien segment of the Universe had impinged here at the moment the energy had been released. But Mahaffey could only stare, sensing somehow that he looked on something very horrible—and very dangerous. A blaze of incredible colors that hurt the eye, angles and curves that were warped and twisted insanely—

He made a quick dash and scooped up Peter, who was standing by the television, paralyzed with uncomprehending fright. Turning to escape, Mahaffey sensed danger. He whirled.

Something was coming toward him, tacking and veering in mad flight, racing out from that crazy blaze of colors. A gray, leathery thing it was, and Mahaffey was perturbed because he couldn't manage to focus it in his vision. Its outlines kept shifting. One moment it was big as a man; the next it was a speck; and then it was in the penthouse.

Mahaffey raced for the desk, snatched a gun out of a drawer. The thing, whatever it was, seemed to be coming forward, though he couldn't really be sure. Everything had gone crazy. He couldn't see clearly enough to aim. But he fired.

Something hit him, sent him spinning in one direction while Peter hurtled across the room to crash into a chair. Mahaffey felt a sickening pain knife into his chest. A rib's busted, he thought. Maybe more than one. Was the kid okay? Yeah, he was moving. His arm, though—broke. Well, that wouldn't kill him. *Look out, kid!*

Gray leathery flesh moved swiftly toward the boy. Mahaffey got to his feet, sprang across the room. He grappled with the thing. Sickening, abysmal pain lanced through every part of him. The creature had hold, seemed to be wrapping itself all around him. The touch of its flesh burned like acid. The gun—

He emptied the weapon at point-blank range. An endless, brain-piercing shrilling screamed out. And, quite suddenly, the leathery thing was gone; the wall of the room was back again, and everything was normal. There was a yellowish, musky smelling liquid on the rug, but this was already evaporating. Peter was lying still, but he was breathing, Mahaffey saw. Tough little sprout; all kids were. *I'm dying*, Mahaffey thought. *That thing's killed me. What the hell was it, anyway? Doesn't matter . . . it's gone now . . . so this is dying. Funny I'm not scared. No worse than*

a knockout punch.

So long, kid. See you again sometime, maybe . . . maybe . . . wish I could say goodbye to your old man before I croak. . . . So long—

DANGER OVER, JOSLYN SAYS— SCIENTIST RETURNS, DECLARES ENERGY EXHAUSTED

NEW YORK, Feb. 2—(GP)—Dr. Howard Joslyn today said no further danger from his so-called "reverse atom" exists, for his instruments show that the surplus of released energy has been dissipated. Since the destruction of Cleveland last night there have been no reports of similar catastrophes, and it is hoped that Dr. Joslyn's statement will be confirmed. The mysterious lights that razed Washington are said to have disappeared. . . .

SUN SAVED! RESUMES FORMER BRIGHTNESS Joslyn's Experiment Successful

NEW YORK, Feb. 3—(GP)—The atomic blanket that smothered the Sun for so many months has been destroyed, Dr. Howard Joslyn declared today, by the energy his famous "reverse atom" released. The delicate balance necessary to maintain the comet's matter on the Sun's surface has been upset, and a hitherto unknown type of ionization has shattered the atomic nuclei of the radiation-smothering blanket. Scientists predict startling discoveries dealing with new properties of matter given immense energy-charges. . . .

SPRING came again to the Earth. Blighted crops began to yield. Sheep and cattle thrived again under the vital radiation of a newborn Sun. The snow that had covered nearly all the world melted and was forgotten. And Joslyn and Molin worked again in the former's laboratory, helping to repair the damage the experiment had done.

Joslyn came in one day smiling. "Remember Terry Webb?" he asked. "Our pilot on the *Newtonia*? Well, he's getting married. I just got a telegram from him. We're invited."

"Bah!" Molin rumbled. "We have no time. Send him my condolences, the young fool. Why should he get married? He's a hero now—everybody giving him medals and money."

The Swiss pointed at a dozen sheets of calculations on the table.

"But look, Howard—I have found the answer. The unknown quantity

in our calculations. It explains your reverse atom very simply."

"What?" Joslyn hurried forward, snatched up the papers. "You've found the missing factor?" His keen eyes searched the calculations.

"Sure. Your figures were right, but your reasons weren't. You got energy, plenty of it—but how?"

"By creating a reverse atom," Joslyn said slowly. "One that released more energy than it apparently possessed."

Molin roared assent.

"So! But we did not look far enough. It does not make sense, Howard—we should have known two apples and two apples don't make five apples. If they do, the extra apple must come from somewhere. And all this energy we got out of nothing—it, too, came from somewhere."

"From the atoms."

"Not from them—through them. You didn't create energy out of nothing; what you did was to tap a reservoir of power. It got you the correct results, but the origin of this power—we both guessed wrong about that. We must have siphoned energy, so to speak, into the atoms of our Universe, from some reservoir of power."

"Perhaps you have hit it," Joslyn said excitedly. "Of course! But this reservoir—"

"Is another continuum. Another Universe, one separated from us perhaps by space and time, filled with potential and kinetic energy as our own Universe is so filled. You simply bridged the gulf between the two continua with your reverse atom, Howard, and siphoned energy to us from

this other Universe — emptied it, drained it dry."

"But look here, Max," Joslyn frowned. "You say the known scientific laws weren't violated. Where has this excess energy gone? If it's been destroyed — that's impossible, you know."

"Not destroyed — converted. It hasn't gone into nothingness. It was utilized in warping and twisting the foundations of the Universe as it did. It was converted, scattered all through our continuum, changed to light, heat, maybe matter. We have far more potential energy than we had before, and the Universe will last longer. It's been rejuvenated."

Joslyn nodded, a little sadly.

"Converted energy—you're right, Max. Changed, like so many lives have been changed and destroyed by our experiment. Mahaffey . . ."

BUT Mahaffey was beyond pain and fear, separated from them by six feet of earth. There were flowers by the grave, some of them put there by Peter.

So many lives . . . changed . . .

A squat Mexican woman searching in the ruins of Washington, her stolid face betrayed by the eternal sorrow of her eyes. . . . Two happy lovers in a Maryland cottage, already forgetting the terror they had known. . . . A woman in Reno, gasping bitter, dry sobs, staring at a mirror and a ravaged shrunken mask. . . . Joe McGowan, the telecaster, getting a divorce and going to Hawaii on his honeymoon with a famous actress. . . .

The world moved on. . . .



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Science Quiz

HOP on the star-wagon for another blazing duel with scientific words, wits, and wisdom. This month's scintillating collection of high-voltage brain-teasers should keep you and your friends guessing for many a moon. If you need any light on the subject, turn to page 125 for the correct answers.

POSITIVE OR NEGATIVE

The following statements are either true or false. Nothing but the truth wanted, so look before you leap if you want to collect I.Q. dividends. (Par for this course—10 correct.)

1. An oersted is a unit used in the science of magnetism.
2. Becquerel discovered the X-ray.
3. The action of the aspirator is explained by Bernoulli's Principle.
4. A magneto differs from a dynamo in respect to the commutator.
5. The modern method of producing high grade steel is by the electric furnace process.
6. Faraday is largely responsible for the atomic theory.
7. The autogyro is a heavier-than-air flying machine intended to rise and descend vertically.
8. An important part of your brain is called the vinculum.
9. Radio waves most nearly resemble sound waves.
10. An object weighs most high above the Earth.
11. A British thermal unit is defined as the amount of heat required to melt an ounce of pure lead.
12. Helium was first discovered in the Sun.
13. The diamond surpasses all other known substances in specific gravity.
14. You would use an electrophorus to experiment with static electricity.
15. A magnet having only one pole is used for lifting loads of steel.

TAKE A LETTER

Here are fifteen incomplete scientific facts. There are three or four suggestions offered as possible fill-ins for each statement, compiled by our staff of experts, that will enable you to complete each sentence. In each case only one is correct. You'll be doing par if you get 10 right!

1. The simplest form of electrical condenser consists of a pair of conducting surfaces, separated by (a) a dissimilar metal, (b) an insulator, (c) a voltage divider.
2. Various kinds of bacteria are shaped like rods, globes, and (a) cubes, (b) rings, (c) corkscrews, (d) stars.
3. When no more of a substance will dissolve in a given quantity of liquid, the solution is said to be (a) saturated, (b) ionized, (c) precipitated, (d) colloidal.
4. If a meteorite falls on your property, it belongs to (a) you, (b) the nearest astronomical observatory, (c) the National Government.
5. If a number of lamp bulbs are connected in a single series, and one of them burns out, all the rest will (a) get brighter, (b) get dimmer, (c) go out.
6. Ernest Lawrence is widely known for his invention of the (a) hydraulic jack, (b) cyclotron, (c) diesel engine, (d) spectroscope.
7. The best conductor of electricity is (a) platinum, (b) copper, (c) gold, (d) silver.
8. If a man was hungry for calories and had an ounce of each of the following, he would choose (a) cheese, (b) milk, (c) sugar, (d) butter.
9. On a hot day, one of these musical instruments will be lower in pitch than on a cold day: (a) violin, (b) cornet, (c) piano, (d) organ.
10. Chromatic aberration is caused by a simple lens due to (a) deviation, (b) diffraction, (c) refraction, (d) dispersion.
11. Your muscles are connected to your bones with (a) adenoids, (b) ganglions,

- (c) tendons, (d) follicles.
12. Sun spots are caused by (a) planets crossing in front of the sun, (b) interference of light rays, (c) storms on the sun.
 13. You would use tourmaline tongs to (a) get a cinder out of your eye, (b) toss red-hot rivets, (c) demonstrate the polarization of light.
 14. Iridium might be found (a) in a list of famous military strategists, (b) at the tip of a fountain pen point, (c) on a map of ancient Greece.
 15. All these animals are misnamed, except the (a) prairie dog, (b) guinea pig, (c) mountain sheep, (d) horned toad.

SKELETONS IN THE CLOSET

Do you know your fossils? Then start excavating into the question below. Dig into our prehistoric boneyard, and see if you can match correctly the geological period on the left with the fossil that belonged to it at the right. (Par—6 correct.)

PERIOD	FOSSILS	PERIOD	FOSSILS
Cambrian	Sabre-Toothed Tiger	Jurassic	Horse
Devonian	Mastodon	Cretaceous	Palaeoniscus
Carboniferous	Dinosauria	Eocene	Lepidodendron
Permian	Pterodactyl	Miocene	Agnostus
Triassic	Ichthyornis	Pliocene	Dipterus

SAY IT WITH FLOWERS

If you want to reap some botanical laurels, then unscramble the following terms. Arranged in their proper order, they spell parts of a flower. (Par for this round—6 correct.)

- | | | | | |
|-----------|-----------|-----------|-----------|------------|
| 1. leuvo | 3. tislip | 5. llneop | 7. hertna | 9. yroav |
| 2. smneat | 4. xlyca | 6. latep | 8. prelac | 10. leluiq |

ALPHABET COUP

The following blanks can be easily solved—if you know your Vitamin A-B-C-D's. Merely fill in the blank with the name of the proper vitamin. (Par—4 correct.)

Even a small deficiency of Vitamin — is known to cause loss of weight and appetite, and loss of tone in the digestive tract. Only man, monkeys, and guinea pigs can get scurvy. It is caused by lack of vitamin —, which some animals synthesize in their bodies but which we must acquire in our food.

Vitamin — is a possible help in build-

ing up resistance to certain infectious diseases, such as colds. The liver oil from a Japanese black sea bass is the richest source of Vitamin —.

Convincing proof of the existence of vitamin — was established in 1913, yet it was not isolated until 1932. An antirachitic vitamin was discovered and called vitamin —.

WHAT'S YOUR SCIENCE I. Q.?

After you have completed the SCIENCE QUIZ and checked your results with the correct answers, get a slide-rule and calculate your score. Here's how you rate:

58-61—Superman.

50-57—Mental Marvel.

45-49—B.B. (Bachelor of Book-worms).

30-44—Try Crossword Puzzles.

15-29—Stick to Fiction.

0-14—Absolute Zero.

Another Great SCIENCE QUIZ Plus Many Other Gala Features Next Month!

THE WHITE BROOD

By HAL K. WELLS

Author of "Moon of Mad Atavism," "Man Jewels of Xothar," etc.

CHAPTER I

Forbidden Moon

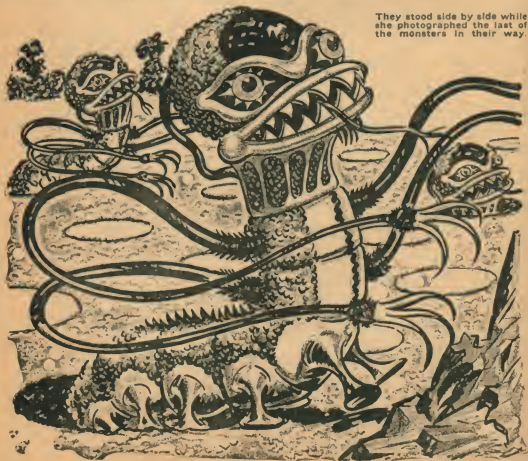
THE mist-shrouded globe of Io, second satellite of mighty Jupiter, swam in the velvet blackness of space like a great pearl of eerily menacing beauty. Five thousand miles above the moon's cloud blanket, the *Orion*, light scout cruiser of the Interplanetary Navigation Patrol, rocketed in the endless circle of quarantine patrol.

There was death upon Io, a death as mercilessly swift as it was starkly mysterious. When the crews of two successive exploring ships had been

annihilated to the last man, the Interplanetary Governing Council had promptly acted. Until one of the I. N. P.'s battle cruisers could be spared to investigate Io's menace, the entire moon was forbidden to the ships of any world. The *Orion* was there to see that the quarantine was rigidly enforced.

In her forward observation cabin, Captain Barton Reed studied the glittering cosmic panorama in the glassite port before him. There was little practical need for the young commander's tedious vigil, and he knew it. The delicate instruments in main control room were a thousand times more efficient than man's senses.

They stood side by side while she photographed the last of the monsters in their way.



THE WHITE BROOD

By HAL K. WELLS

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CHAPTER I

Forbidden Moon

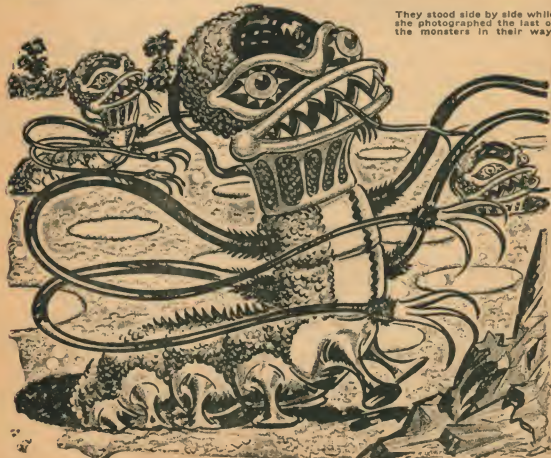
THE mist-shrouded globe of Io, second satellite of mighty Jupiter, swam in the velvet blackness of space like a great pearl of eerily menacing beauty. Five thousand miles above the moon's cloud blanket, the *Orion*, light scout cruiser of the Interplanetary Navigation Patrol, rocketed in the endless circle of quarantine patrol.

There was death upon Io, a death as mercilessly swift as it was starkly mysterious. When the crews of two successive exploring ships had been

annihilated to the last man, the Interplanetary Governing Council had promptly acted. Until one of the I. N. P.'s battle cruisers could be spared to investigate Io's menace, the entire moon was forbidden to the ships of any world. The *Orion* was there to see that the quarantine was rigidly enforced.

In her forward observation cabin, Captain Barton Reed studied the glittering cosmic panorama in the glassite port before him. There was little practical need for the young commander's tedious vigil, and he knew it. The delicate instruments in main control room were a thousand times more efficient than man's senses.

They stood side by side while she photographed the last of the monsters in their way.



A SPACEWAYS NOVELET



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But the little black book titled, "Rules and Regulations of the Interplanetary Navigation Patrol," stated that a commanding officer must stand watch in the observation cabin. The rule was a relic of cruder, earlier days and was ignored by most modern commanders.

But it was not ignored by Barton Reed. He had a cool courage that was deadly in combat, and he was a holy terror with any weapon in the I. N. P. His skill as a pilot was almost legendary. But his precise, methodical mind clung to the little black book with a tenacity that annoyed those under his command.

There were times when it proved irksome even to Reed, though he stubbornly refused to admit it. The present moment was one of them. His temples were beginning to throb with the after-effects of the crimson fever that had hospitalized him on his last trip to Jupiter. He fished a vial of *concar* tablets out of his pocket and popped one into his mouth. *Concar*, made from the bark of the towering Jovian *concar* tree, attacked crimson fever as Earth's quinine battled malaria. He relaxed as the drug brought swift relief.

THE communications buzzer at his elbow suddenly jarred. He lifted the phone.

"Picked up something, Skipper," reported Lanton, observation officer. "Too far out to get any definite dope, though."

"I'll be right with you," Reed said.

Eight of his junior officers—the entire crew necessary to handle the highly automatic mechanism of the *Orion*—were in the control room when Reed entered it. Lanton, the blond, freckled observation officer, was busy at the detector panel. His fingers moved swiftly over its dials and switches while he listened intently through head-phones.

His companions watched him with the hope that the faint signal would really break the dreary monotony. During the long weeks that the *Orion* had woven her endless circles around the forbidden moon, there had only been two genuine alarms.

One had been a Saturnian freighter, disabled by an etheric storm. The other was a small private cruiser piloted by a plump and intoxicated Martian trader. The freighter had been repaired and sent lumbering Earthward. The plump Martian was now serving out a sentence for drunken driving in navigated space-ways.

"Probably just another overgrown meteor," grunted Barlow, the gunnery officer.

Lanton looked up.

"That's no meteor. It has a tungstine-chromite hull and rocket motors. Present position one degree above Alpha Centauri. Coming straight for Io. Present speed about forty units."

Reed threw the switch releasing the robot pilot and threw in the manual controls. The *Orion* accelerated abruptly from thirty units to a hurtling one hundred. Guided by Lanton's readings, Reed lined the rocketing ship on that of the invader.

"Maybe the guy's an Alpha Centaurian," Barlow suggested hopefully, "coming to stage a raid on the Solar System. Wonder what a Centaurian looks like, anyway."

"I wouldn't sprain any brain cells worrying," Lanton said wryly. "That guy is driving a light speed job with a Simpson twin-twenty rocket motor, made in Detroit."

They were so near now that the unknown craft's exhaust gas showed as a faint reddish spark in the telescopic screen.

"Try to contact him, Adams," Reed told the communication officer. "Send this message 'I. N. P. *Orion* calling. Change course immediately. Approach to Io forbidden by Interplanetary Governing Council. If unable to change course, advise us and we will aid you.'"

Adams' transmitter crackled in the swift staccato of the Interplanetary code. There was no answer. He repeated the message. The other craft gave no indication of having even heard it.

"We'll skip the politeness," Reed said. Send this message 'Change your course immediately to parallel Io's surface. Decelerate to ten units. Make

contact when we come alongside. Report on board under arrest'."

IT got a fast answer. An odd expression came into Adams' eyes as he listened.

"The guy says: 'How would you like to go chase the tail of a comet?'" he reported.

"Spaceways humorist, eh?" Reed grunted. "We'll fry a little of that humor out of his funny-bone." He fed fuel to the powerful motors with a surge that nearly doubled the cruiser's already terrific speed. "Ready rays, Barlow."

"Aye, aye, sir!" the plump gunnery officer answered, grinning.

The intervening space shrank with startling swiftness. Scant minutes passed before their quarry's ruddy exhaust was clearly visible in the normal vision screen.

"Give him a final warning, Adams," Reed ordered. "'Heave to at once, or be rayed.'"

The receiver sputtered in prompt answer. Adams read it aloud.

"He says: 'Better not do any raying if I were you. If you do, you'll certainly regret it.'"

"Barlow," Reed said tautly, "see if you can toast a little manners into him!"

A thin pencil of pale light lanced from the *Orion's* bow, stabbed across space, and impaled the distant craft. The luminous portion of the ray was merely to aid the rayer in aiming. The damaging part of the ray was infrared emanations, so far down in the spectrum that they were nearly pure heat.

Barlow manipulated the ray mechanism with his right hand. His left hand was ready to throw additional power into the cruiser's protective screen if the smaller ship should attempt a little raying upon its own account. But there was no answering attack.

The speed craft shot to the right, then wheeled again in a dizzy series of acrobatics. The gyrations were entirely wasted. The rayed ship was bucking the best pilot and one of the best rayers in the I. N. P. The pale lance from the *Orion's* bow remained

inexorably fixed upon the smaller craft.

"Step it up a little," Reed said.

Barlow's plump fingers moved slightly upon a vernier dial. To use the powerful heat battery as a mere disciplinary weapon required infinite care. Too heavy a blast would melt the tiny craft in a flaming sheet of fiery death.

The impaled ship made a final, vain effort to escape the torturing heat. Reed watched, calmly certain of the outcome. The temperature inside the other hull must be close to a hundred and twenty now, and steadily rising.

The invader abruptly leveled out. Red flame spurted from its bow jets. Adams' receiver chattered.

"That did it," he commented. "The guy says: 'All right, you moon-bound apes. Turn off your heat and I'll come in.'"

"Shut off the toaster, Barlow," Reed ordered. "But keep your sights lined, in case our friend should change his mind."

BUT the recalcitrant pilot had apparently had enough. He made no further effort at escape as the cruiser, with bow jets flaming in deceleration, swiftly closed the remaining distance. Directed by the *Orion's* radioed orders, the smaller craft came docilely alongside. It was a beautiful little silver craft, fifty feet long, with speed and grace in every inch of its smartly streamlined hull. Reed scanned the image in the wall screen.

"It's from Earth, all right," he said. "It's name is the *Silver Argosy*."

"The *Silver Argosy*!" Barlow exclaimed. "That's Dorene Arlan's planet-trotting buggy. Gentlemen, we have been raying a lady!"

"What of it?" Reed demanded imperturbably. "I don't remember that I. N. P. regulations make any exceptions of the feminine sex."

"No," Barlow agreed. "But the guys who wrote the little black book never ran up against anything like Dorene Arlan. That gal has fractured every known rule in the book at least once, and she's never stayed long in jail."

"Just long enough to get word to Uncle Amos, who happens to own

about half the System," Lanton grunted. "Uncle Amos speaks. The jail doors open, and little Dorene wanders blithely forth to commit mayhem upon a brand new set of laws."

"She'd still get away with it even if she didn't have an Uncle Amos," Barlow argued. "That gal is without any possible doubt the ten best-looking women in the Solar System."

"And one of the nerviest," Adams chimed in. "She's been places and done things that would turn my curly locks white. Dorene Arlan, the Girl Planeteer, Danger's Darling, Queen of the Tel-audio Screen. She's got plenty more than just her good looks, and I'm one guy who admits she has plenty of beauty."

"All of which," Reed commented, "doesn't alter the fact that at the moment she's under arrest for breaking the law in a peculiarly idiotic way. Go back to the port lock, Barlow, and let her in. After you've assured her that you are the most loyal of her millions of adoring fans, bring her here to me."

As the two craft swung toward each other, Reed had to admit that Dorene Arlan was as good a private pilot as he had ever seen. The *Silver Argosy* was handled with beautiful precision in the delicate maneuvering preliminary to making contact. She drifted alongside so lightly that the jar was barely perceptible. Then the *Orion's* magnetic grapples took sudden hold and clamped the small craft tightly against the cruiser's side.

"Take the controls, Ansler," Reed said to the junior navigation officer. "Swing us back on regular patrol course. Then turn it over to the automatics again."

Stars streaked across the wall screens as the *Orion*, with the small *Silver Argosy* clamped immovably to her thousand-foot hull like a barnacle on a torpedo, turned in a sweeping arc.

REED sat down at the chart table. To his intense annoyance, the young captain found his heart thumping with unnecessary vigor.

"What the hell's the matter with

me?" he asked himself irritably. "I'm as nervous as a schoolboy on his first date."

True, Dorene Arlan was the glamorous Girl Planeteer whose exploits were the sensation of the tel-audio theater screens. She had crossed the fabulous Purple Ice Mountains of Mercury's Dark Side on the furry back of a three-ton *landoehr* bear. She had swum the deadly Rainbow Rapids of Mars' Gorge of the Giants. She had lived for a month with the savage tortoise people of Luna's inner caverns. She was the favorite niece of Amos Spindler, the richest man in the Solar System.

Yet in spite of all these things, Reed assured himself that Dorene Arlan was neither a princess royal nor a goddess. She was just a girl. That, he admitted reluctantly, was probably the whole trouble. To Captain Barton Reed's precisely ordered mind, girls were utterly unfathomable mysteries. They wrecked his composure, shattered his peace of mind, and left him feeling completely baffled.

Reed scowled in disgust and rose to his feet. The control room, he realized belatedly, was not the ideal place to receive Miss Arlan. His junior officers would be fiendishly appreciative of any discomfiture that their captain might suffer in an encounter with the redoubtable Arlene.

"I'm going back to my cabin," he said. "Send Barlow and Miss Arlan there."

CHAPTER II

Danger's Darling

REED had been in his cabin only a few minutes when they arrived. Barlow's ears were crimson with embarrassment. The girl accompanying him was the prettiest and angriest female Reed had ever seen.

Dorene Arlan in real life was smaller than she appeared on the tel-audio screen. Her cream-colored pilot's uniform set off her angry bru-

nette beauty with striking effect.

"Th-this is Captain Reed, Miss Arlan," Barlow stuttered. "Captain Barton Reed."

The famed Arlan brows arched. The equally famous Arlan eyes surveyed Reed with an expression which suggested that Miss Arlan was gazing upon a new and distinctly unpleasant species of insect life.

"It was always my impression, Captain Reed," she commented acidly, "that commanders in the I. N. P. were possessed of chivalry and intelligence. It seems that I was mistaken in both respects. Do you make a regular practice of turning your heat batteries upon defenseless women? Or was this little incident merely your idea of some good clean fun?"

Reed's lean face flushed to the roots of his sandy hair.

"You may go, Barlow," he said.

"Aye, aye, sir!" Barlow scuttled anxiously for the door.

"Miss Arlan," Reed said with carefully restrained temper, "until you came alongside, we had no way of knowing whether your ship was piloted by a woman, a man, or a Saturnian cave bear. Your radio messages didn't mention your identity."

The girl's eyes flashed. For a moment Reed thought he was going to receive the full blast of a famous Arlan broadside. Then abruptly Dorene Arlan's smile was a vision of dimpled beauty.

"You're right, Captain Reed," she said sweetly. "It was stupid of me. Of course you wouldn't have rayed me if you had known who I was. I accept your apology."

"I made no apology," Reed said bluntly. "I.N.P. regulations require that fugitives be subdued by rays. If we had known that you were Dorene Arlan, you would have been toasted just as quickly as though you were John Q. Jones. The only difference is that you probably might not have been rayed so severely."

"And the fact that I happen to be the niece of Amos Spindler would have made no difference to you?"

"It would have made no difference if you were Amos himself. I.N.P. regulations apply to the Spindler fam-

ily as well as to ordinary humanity."

"Regulations!" Dorene snapped impatiently. "There's something disgustingly familiar about your conversation, Captain Reed. Oh, yes. You're known throughout the I.N.P. as 'Rules and Regulations' Reed. The boys even have a little song about you."

Her clear voice was mocking as she sang a parody of one of Earth's ancient comic operas.

"Oh, he followed all the rules from A to Z, and now he's a captain in the I.N.P."

REED'S big hands clenched. He would cheerfully have given a full *kandar* of Martian green gold if she had only been a man and about eighty pounds heavier.

"Just my luck!" The girl shook her head in disgust. "Of all the commanders who might have been on patrol here, I had to run into you. Most of the boys would have been human enough to let me solve the mystery of that forbidden moon down there. After all, the only thing that would be risked would be my own neck. But I know better than to ask a little favor like that from you."

She stopped Reed's attempt to answer with an imperious gesture.

"Don't tell me! I know it's against regulations. All right, I'll head back for Earth whenever you release my ship. Or am I still under arrest?"

"You can leave any time you wish," Reed answered, "as long as you leave in the right direction."

"Thank you." Dorene glanced at her wrist-watch. "I see it's nearly time for mess. I wonder if you'd mind if I joined you before I leave, or is that against one of your precious regulations?"

"I believe the regulations will stand it," Reed said shortly. "There's an empty cabin next door. You can go in there and freshen up, if you like."

When Reed went aft to the mess cabin, he found he was the last to arrive. The entire personnel of the *Orion*—with the exception of Lanton, who had to remain on observation duty in the control room—was gathered around the table. Reed had seldom seen such spotless uniforms, such

brilliantly shined shoes, and such closely shaven faces.

The real transformation, however, had been wrought by Miss Arlan herself. She had managed to remove all trace of the toasting she had received from the *Orion's* rays. Her black hair was fluffed in soft curls around the exquisite oval of her face. She looked as cool and dainty as though she had just stepped from one of Earth's beauty salons.

She had also changed her manner as thoroughly as she had changed her appearance. The blazing temper and arrogance of the girl in Reed's cabin had vanished. This edition of Dorene Arlan was demurely smiling, utterly feminine, completely charming.

Reed assured himself that it was merely an act. The famed Arlan charm was a commodity that could be turned on and off as easily as water from a faucet. He had to admit to himself, though, that it was a good act. His junior officers were dazed, absolutely conquered.

As the meal continued, even Reed found himself thinking thoughts that were startlingly foreign to his precisely ordered philosophy. Even the routine food of the *Orion's* mess tasted unusually good for some reason. Dorene Arlan explained that.

"I took the liberty of helping a little with the meal, Captain Reed," she said, softly apologetic. "I hope you don't mind."

"Not at all, Miss Arlan," Reed answered, with an enthusiasm that surprised him.

"The dessert is something special," Dorene added. "It's the usual Venus greenberries, but you might call it dessert a la Arlan—made entirely with my own fair hands."

SHE laughingly held up a pair of small hands for inspection. They were nice hands, Reed admitted to himself, small and beautifully molded, but with supple strength in every slender line. And it was an unusual dessert, an odd sweetish tang mingling with the familiar tartness of the greenberries.

"I took a helping of it forward to Mr. Lanton in the control room,"

Dorene admitted. "I know it's against regulations for an officer to eat while on duty. But you won't mind just this once, will you, Captain Reed?"

Reed knew he should mind. It was a flagrant violation of the rules in the little black book. But for some strange reason, regulations didn't seem important at the moment. As a matter of fact, nothing seemed important.

His brain seemed suddenly and strangely clouded. The spoon in his hand became a heavy weight that fell from his nerveless fingers. The sharp clang as it struck against the edge of a plate roused him for a fraction of a second. On every side, his junior officers were succumbing to the same strange lethargy. Their collapse was even swifter than his own. While he still retained a blurred remnant of consciousness, they slumped forward, soundly slumbering with their heads pillowed upon their arms. Ansler slipped limply to the floor. Barlow sat upright in his chair. The cherubic expression on his round face was ludicrously like a sleeping infant's.

But Dorene Arlan was vibrantly alive as she faced Reed across the table. There was no mistaking the malicious triumph that glowed in her dark eyes.

"Dessert a la Arlan, Captain Reed," she said, her low voice softly jeering. "Venus greenberries liberally sprinkled with *somnolian*. How do you like it, Captain?"

Realization of what the girl had done came to Reed's fast numbing brain. *Somnolian*, the powerful soporific powder found in the White Caves of Titan—No wonder the *Orion's* crew slumbered! The merest pinch of that stuff brought utter oblivion for hours.

Reed fought desperately against the overpowering heaviness of his eyelids. Dorene Arlan's cheeks dimpled in frank amusement. She rose lithely to her feet and stood for a moment watching the sandy-haired young captain's vain struggle.

"Don't fight, little man," she said in gently soothing mockery. "Just close your eyes. That's a good boy. You might have wonderful dreams about all the nice rules and regulations in

the pretty little black book. And if you're a good boy, when you wake up, maybe Auntie Dorene will tell you all about the big bad boogy-boos she found on the mysterious, forbidden moon Io."

Reed's eyes were nearly closed despite his frantic efforts. He realized vaguely that he shouldn't have been able to fight off *somnolian* this long. Then, from far back in his brain, memory suddenly brought the answer to that puzzle. He would have grinned in his charming tormentor's face if his muscles had not been too numb to respond.

There was one thing the confident Dorene Arlan had not taken into her calculations, only because she had known nothing about it. Her margin of time before the *Orion's* crew awoke was likely to be much shorter than she anticipated.

That was Reed's last conscious thought. He caught a dim glimpse of Dorene tossing him a mocking kiss from her fingertips as she headed for the door. Then the deep, black slumber of *somnolian* finally claimed Barton Reed.

CHAPTER III

Beneath Io's Gray Shroud

AFTER short oblivion, Reed awoke with startling swiftness. *Somnolian* sleepers always awake sharply when they finally emerge from the drug. For a moment, he stared bewilderedly around him. Then memory quickly returned.

He glanced at his watch. He had been asleep only an hour and five minutes, instead of the usual eight hour minimum slumber of *somnolian*. His junior officers were still sprawled around him.

Captain Reed smiled as he rapidly sprang to his feet. He would have been asleep, too, if he had not taken that *concar* tablet just before the *Silver Argosy* was sighted.

In addition to being a specific for crimson fever, *concar* was one of the few known chemicals that counteract-

ed *somnolian's* effects. There had not been enough remaining in his system to make him immune to the drugged dessert. But it had cut the effects to a mere fraction of the usual time.

He hurried to the port lock. The outer door gaped open and the *Silver Argosy* was gone. He threw the switch to close the door, glanced at the rheostats of the magnetic grapples. Dorene Arlan certainly had intelligence to work it single-handed.

Before entering the lock, she had cut the power of the grapples just sufficient to keep the *Silver Argosy* from going adrift. Then she had simply blasted free from the weakened attraction of the grapples.

Reed went to his own cabin. He filled a hypodermic needle with a solution of *concar*, then hastened to the control room. Lanton sprawled in front of his detector panel, snoring lustily. When Reed jabbed the needle into Lanton's arm, the observation officer awoke with a jerk. "*Somnolian* in those greenberries," Reed explained, tersely. "She's probably somewhere between here and Io by now. Try to pick her up."

Lanton worked his dials.

"I got her! She's less than a thousand miles from the surface, traveling fast."

"I'll follow her in the tender," Reed said curtly. "You keep lined on her and relay the data to me."

Lanton's eyes widened. Following the fugitive was a job for a junior officer, not the cruiser's commander.

"But the regulations, Skipper—"

"Regulations be hanged!" Reed barked. "This is a personal matter and I'm handling it in person. Help me launch the tender. On your way back to the control room, give Ansler a shot from this hypo. Tell him to take over manual navigation, keeping the usual distance out from Io, but cruising in a one-hundred-mile circle directly over the *Silver Argosy*. Then wake up the rest of the boys."

The *Orion's* tender, with Reed at the controls, hurtled away from the cruiser's side in a flare of flaming gas. Reed opened the throttle to the last possible notch, and set his radio receiver to catch Lanton's broadcast. He

knew there was no chance of overtaking the *Silver Argosy* before it landed on Io. But at least he could get there within a short time after her landing.

Cold dread surged through the chaotic jumble of thoughts and emotions in Reed's usually precise brain. The deadly menace of the unknown doom beneath the shrouding mists had already overwhelmed the entire crews of two ships. What chance could one small girl stand against it, regardless of how resourceful and jauntily courageous she might be?

He had covered half the distance when Lanton's voice brought the news he had been dreading.

"*Silver Argosy* just landed on Io."

THE tender rocketed with the hurtling speed of a projectile. But to Reed's impatient mind, the trim little craft barely seemed to crawl. A quarter of a million miles astern, the vast continental area of the Red Spot glowed like some monstrous unwinking eye. Behind the colossal planet was the distant Sun.

Dead ahead, the pearly globe of Io glowed in subtly evil beauty. Only three ships had ever landed on the Moon before. Of the three, the one crew to return alive had been the first. They had been members of a regular exploring party, sent by the I. G. C. to make a preliminary report upon the satellite. They had remained for thirty hours. The report they brought back had been completely discouraging.

Io's surface was a vast morass of glistening black muck, broken by towering ramparts of gray stone. The ebon muck of the plains was dotted with small, shallow, circular craters, and between the craters flourished a dank growth of giant pallid fungi. There was evidence of teeming animal life, both aerial and surface. But no indication existed of any inhabitants even remotely approaching human intelligence. Like the rest of Jupiter's major satellites, Io revolved with the same face always turned toward its huge host. Its atmosphere, though heavy, was quite breathable. The forty-mile-thick blanket of dense

clouds made it a chill, damp world of gloomy twilight.

Several years later, another I. G. C. expedition was sent upon a routine assignment to obtain more data. It landed, and that was the last that was ever heard of it and the entire crew of eight men. After several months a third ship, a small cruiser with a crew of ten, was sent to investigate. It was lost in utter oblivion, as though it had plunged into the heart of one of the dark nebulae.

That settled it as far as the Council was concerned. Io was promptly quarantined until an adequately armed battle cruiser could investigate its deadly mystery, and possibly eliminate it. Dorene Arlan's *Silver Argosy* had been the only craft to run successfully the *Orion's* quarantine guard patrol.

Reed was a scant fifty miles from Io's surface when he switched from stern to bow jets and began decelerating. Still traveling at dangerous speed, he plunged into the moon's stratosphere.

He broke radio contact with the *Orion* then, for the *Silver Argosy* was beginning to register in the limited range detector of the tender. But gray fog cut his visibility to a dozen feet on either side. Blindly he hurtled on. His only guides were his altimeter and the detector unit.

Five miles from the unseen surface, he cut his speed to a perilous one hundred miles an hour. The *Silver Argosy* was five miles directly beneath him. Four miles—three miles—two. Reed's jaw muscles tightened. Was there no ceiling at all to that clammy opacity?

The bow jets flared momentarily as he again cut his speed. He was less than a mile above the invisible surface of the moon now. He had occasional glimpses of something that looked like great green wings. Then, at two thousand feet, he shot out of the murk with startling suddenness.

AROUND him swarmed flocks of weird batlike creatures. They were of genuinely formidable size, with wings of shiny green membrane extending fifteen feet from tip to tip.

But they made no move to attack the tender. Their attention seemed fixed upon something on the ground below them. Reed looked down.

Several miles in the distance, he dimly glimpsed the towering ramparts of lofty gray mountains. The terrain just beneath him was a vast black plain, broken at irregular intervals by low ridges of outcropping gray rock. Near one of these rocky ridges the slim cylinder of the *Silver Argosy* rested upon the black soil.

He dropped to five hundred feet, then leveled out. He hung, momentarily supported upon cushioning flames from the tender's underjets, while he reconnoitered the situation. The *Silver Argosy's* exit lock was open. Dorene Arlan's tiny figure was standing upon the summit of a low ridge of gray rock fifty yards away from her ship. Reed saw the girl look up briefly at the hovering tender, then return with apparent unconcern to a small camera on a tripod.

He cut the cushioning jets and dropped gently toward the surface. As he neared it, he saw the black soil where Dorene stood glistened in a way that was suspiciously suggestive of semi-liquid swamp terrain.

He shot his port jets, sent himself drifting over a more solid spot some two hundred feet beyond the ridge. With a final spurt of cushioning gas, the tender came gently to rest upon the surface.

He armed himself with a heavy two-handed detonite gun, in addition to the pyratine pistol in his belt holster. The air, as he stepped out of the tender's lock, was heavy and dankly chill. There was an odd unpleasant tang in it like the miasma of decay. Io's relatively small diameter of 2,109 miles produced a gravity that seemed light to his Terrestrial muscles as he started toward the ridge where Dorene Arlan stood.

Stark, abysmal menace hovered over the desolate landscape like a vast, intangible shroud. Reed felt it the moment he left the tender. It increased with every step he took across the nightmarish terrain.

The flocks of giant, green-winged bat-things wheeled silently lower, as

though in anticipation. The plain itself was utterly devoid of the larger fauna that the first I. G. C. expedition had reported. The only living things visible were small purple spiders. They crawled sluggishly over the greasily glistening fungi that grew everywhere between the countless depressions that dotted the black soil.

Reed carefully avoided stepping upon any of the circular holes. The first expedition had called them shallow craters. To Reed, they looked more like lids of some closely woven silk material. Each of the sunken discs was approximately three feet across. Reed estimated that there must be literally millions of them on the entire surface of the vast mountain-ringed plain.

SKIRTING A CLUMP of dripping fungi that towered a yard above his head, he climbed a ten-foot whaleback of gray rock. He found himself facing Dorene across a fifty-foot space. The soil between the gray silk discs shone like semi-liquid swamp-land.

"Greetings, Captain Reed," the girl called, as coolly unconcerned as though they were meeting at some Terrestrial social function. "Did you sleep well?"

Reed flushed involuntarily.

"Never mind answering," Dorene said. "I see you woke up with the usual masculine frown. You also awakened about six hours before I expected you to. But it doesn't matter. I've about finished here."

"Listen, you little nitwit!" Reed exploded. "Gather up that junk and get back to your ship. Something is going to break loose any minute now. Can't you feel it, featherbrain? The air is alive with it!"

"Are you sure you feel all right, Captain?" Dorene asked sweetly. "You sound a little delirious. I don't see anything wrong. The surroundings are a little somber for my taste, but they look quite harmless."

Before Reed could answer, there was a sudden sound from the plain just behind him. It was oddly like the dull plop of a large cork being ejected from a wide-mouthed jug. He

spun around, stood transfixed in startled amazement.

CHAPTER IV

Horror's Spawn

ONE of the nearby discs had vanished, leaving a round black hole. From it was emerging a great bulbous head, armored in gleaming black chitin, with multiple mandibles scissoring hungrily beneath the hideous mouth. The ghastly head was followed by a leprous-white worm-body with murderously hooked talons.

Scant seconds later the monstrous figure wriggled clear of the hole. Visible in all its obscene horror, it looked like a colossal caricature of the repulsive worm larvae of Earth's Sphinx moths. The bloated segmented body was ten feet in length, and as thick as the waist of an average man.

There was a second dull plop over at Reed's right, followed by another at his left. Suddenly the air was alive with muffled reports as gray silk discs went spinning, and giant white worm-things began emerging by the score.

Reed turned back to Dorene. Already half a dozen of the nightmare beasts writhed in the swampy muck between them.

"Get back to your ship!" he shouted. "Another minute and it will be too late!"

"What—and miss the shot of a lifetime?" The girl's voice was vibrant with excitement. "Don't be silly."

She snatched a small pyratine pistol from a holster at her belt. Holding the weapon alertly in one hand, she manipulated her camera with the other.

Reed glanced despairingly at the swampy space between them. There was too much chance of bogging down if he tried to cross it, and it would take too long to go around. The best tactic was to return to his own craft and bring it over the ridge.

The armored head of a giant worm writhed squarely in his path as he charged headlong down the rocky

slope onto the plain. He dodged to escape the clashing mandibles, circled a second monstrosity. Then he found his way to the tender barred by so many worms that there was no longer room to dodge.

The detonite gun spat softly. Compressed air shot forth a deadly little pellet of contact explosive. There was a sheet of crimson flame and an ear-splitting explosion. A bloated body was blasted to pulpy white flesh and sluggishly oozing yellow ichor.

Reed fired again as he ran. Another worm vanished in a terrific roar of flaming detonite. But from either side, new monsters writhed in blindly. Beyond them, countless more of lo's white brood spawned into hideous life with every passing second.

The air was filled with the raucous cries of the green winged bat-things. They plummeted down in flocks, with murderously ripping fangs and talons. The scene on the ground was stark chaos.

Some of the worms crushed down the fungi and devoured its pulp with ravenous hunger. Others fought madly against the bat-things or attacked their own kind with equal savagery. Still others sought to crush the puny man in their midst.

REED swung the muzzle of the detonite gun from side to side. Pellets sprayed from the muzzle in a continuous stream. Flame flashed in rippling crimson sheets. The crashing explosions of detonite were an almost unbroken thunder. The deadly rain of missiles blasted a path through the pulpy bodied monsters. Through that path, Reed slipped and stumbled in the greasy debris that muddied the black soil.

He fought forward in a frenzy of nightmare battle, in which all sense of time or distance vanished. Abruptly he was aware that the lock of the tender yawned just in front of him. He blasted back the surging worm-things with a final deadly burst of ripping flame and crashing thunder. Staggering through the lock, he swung the door closed behind him.

He hurried forward to the tiny control room that was like a streamlined

bubble far out on the tender's slender nose. He caught his breath in a sharp gasp of horror as he stared out of the heavy glassite windows.

Io's white brood had spawned in overwhelming numbers. If he had been even ten yards farther away from the tender when he started his mad dash, he would have been doomed. Thousands of pulpy bodies now covered the black muck of the plain in an almost solid carpet of writhing leprous-white.

Reed's glance flashed to the ridge where Dorene Arlan had stood. His heart leaped in swift relief. The girl

foot craft itself could be a mighty weapon of deadly efficacy. Reed's large, sensitive hands moved with swift sureness on the controls.

Flame spurted from every jet as he deftly kept the power balancing at all points. The flaming gas blasted twenty feet around the tender, filling the murky air with mangled worm bodies.

Holding the other jets as they were, Reed swiftly fed more fuel to the stern tubes. The craft shuddered, lurched loggily for a second. Then it moved forward, sliding on over the gleaming black muck like a great metal sled.

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still stood there, though hopelessly marooned from her own craft. She fired with cool accuracy, frying the few worms that tried to writhe up the rocky slope to reach her.

The girl was safe for the moment, but the worm horde had already surged solidly over the lower ridge where Reed had stood. It would be a matter of minutes before their sheer numbers drove them up and across Dorene's ridge. Against that overwhelming onslaught, the light pyratine pistol would be useless.

He flung himself into the pilot's seat and grabbed for the rocket controls. There was no time to maneuver for a safe landing place in the tricky terrain near Dorene. He had to hurtle directly across the ground toward her.

The tender had no armament of its own to clear a path through the horde that barred the way. But in the skillful hands of an expert pilot, the fifty-

Under Reed's expert hands, the tender swiftly gained its speed. Before the resistless onslaught of that flame-sheathed engine of destruction, even the living wall of massive worm bodies gave way. It lurched up and over the low ridge where Reed had stood, dipped down the other side and drove across the swampy terrain. The swampland surface was thickly carpeted with the worm horde. Their crushed and flame-blasted bodies kept the rocketing tender from settling in the muck.

Through the ichor-smeared glassite windows, Reed saw that Dorene Arlan's situation was desperate. The worms had driven her to the last remaining fragment of open ridge above them. She was surrounded on every side. The pyratine pistol in her hand spat frenziedly to keep the white horrors at bay.

Reed sent the flaming tender crash-

ing across the last few yards and halfway up the slope of the ridge. He was too close to the girl to use the rocket jets any longer. He snatched up the detonite gun and raced for the lock.

THE crashing havoc of the detonite pellets blasted away the giant worms between him and the girl.

They stood side by side for an instant while she photographed the last survivors. Then Dorene hurdled the twitching debris of blackened pulp and raced to Reed's side. He swept her inside the lock. The heavy door clanged securely shut behind them.

The inner door of the lock opened directly into the main cabin of the tender. Dorene walked unsteadily across the small room and collapsed in a chair. Her face was pale, her eyes closed as she fought gamely to regain control of shattered nerves.

The pallid horde was already swarming over the tender's hull. One of the hideous chitin-armored heads weaved blindly just outside the forward window.

Reed shot full power to the underjets. The craft rocketed skyward for five hundred feet, then stopped as he momentarily cut the power to keep the tender hovering.

The giant worm had vanished from the window. So had half a dozen others that had been on the hull at the takeoff. Reed looked down and saw their bulbous, segmented bodies far beneath him, twisting and writhing in the air as they plummeted moonward.

Grimly he reflected that he could report to the I.G.C. that the major part of Io's lethal mystery was solved. The giant worms obviously spawned at definite intervals, somewhat like the seventeen-year locusts of Earth. The first I.G.C. expedition had landed and departed when the worms were still in their subterranean burrows.

The two expeditions that had followed had not been so fortunate. They had apparently landed on Io just before the spawning periods. Lulled by the apparent harmlessness of their surroundings, the crews had wandered too far to fight their way back when the worms had spawned. They

must have died hideously beneath the clashing mandibles and ripping talons.

Reed turned back to the controls. He kicked the nose of the tender up, fed power to the stern jets, and shot upward into the low hanging clouds. When he finally emerged from the thick cloud blanket, he contacted the *Orion* and got a directional beam from Lanton. Then he set the tender's automatic controls and went aft to the main cabin.

DORENE ARLAN had recovered from her brief attack of nerves. She was her exquisitely poised and serenely confident self as she raised her hand in a jaunty greeting. Reed's gray eyes narrowed. There were several scores to be settled with the pampered Darling of Danger, and this was an excellent time and place to start settling them.

"I suppose I should thank you for saving my life, Captain Reed," Dorene said. "I was in a nasty fix."

"Getting into the fix was your own idea," Reed said bluntly. "The fact that I saved your life was merely incidental. I was there primarily as an officer tracking down a fugitive."

The famous Arlan eyes opened wide. "How charmingly chivalrous!" she exclaimed. "And I suppose I am under arrest now?"

"You are. I won't bother reciting the charges against you. The list is too long. You'll be returned to Red City in custody as soon as we reach the *Orion*. I'm also confiscating any film you may have salvaged."

The brown eyes beneath the fine brows flashed fire.

"You know I won't be in jail fifteen minutes! You also know that I'll have no trouble getting my film back again. But have it your own way, Captain. Go ahead with your silly arrest. After all, I've done pretty well. I crashed the gates to the forbidden moon. I solved the secret of Io's mystery. And I got a story and pictures that will be the sensation of the System. In short, I got everything I wanted."

"And I suppose you don't know of any real punishment you could be made to suffer for having broken at least a dozen sensible laws."

Dorene's lovely head shook in mocking negation.

"Well, I do," Reed said grimly. "Our great-grandfathers had an effective way of treating spoiled brats. They spanked them."

"You wouldn't dare!" Dorene gasped. "I'll have you court-martialed!"

"You won't have me anything. The minute you tell about being spanked, you're going to be ridiculous. And being made ridiculous is the one thing the Glamour Girl of the Spaceways doesn't dare to risk. Will you come and get it, or must I bring it to you?"

Bringing it to her proved to be somewhat like corralling a small but violent wildcat. He finally got the furiously squirming girl solidly across his knees. Proceedings from that point on were carried out in the methodical and thorough fashion that characterized all of Barton Reed's undertakings.

The first smack brought tears of outraged dignity to Dorene Arlan's eyes. Succeeding smacks brought other tears inspired by quite different emotions.

Reed finished and returned a well-spanked girl to her feet. Dorene's

tear-stained face worked for a moment. Then, to Reed's complete surprise, she managed a trembling smile.

"If you say that hurt you more than it did me," she said, "you'll be nothing but a liar."

There was something utterly appealing and childlike in the plucky little figure. Without having the faintest idea of how it came about, Reed found her in his arms again. But now he was gently kissing away the tears as one kisses away the tears of a child. Then abruptly there was a pair of firm slender arms around his neck, and a kiss on his mouth that was distinctly not that of a child.

The brown eyes looked up into Reed's face with teasing laughter.

"I'm afraid, Captain, you're acting outrageously against the rules of the little black book."

Reed grinned. "Not at all. The little black book specifically says: 'In cases of emergency, the commander is empowered to act according to the best of his individual judgment.'"

Dorene Arlan smiled contentedly and sighed against his broad chest.

"I think, Captain Barton Reed," she murmured, "that you have really excellent judgment."



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The Valiant Ten Probe the
Dead Mysteries of Mercury
and Make a Choice Between
Life and—Life!

GREETINGS from Mercury,
Earth!

One hundred forty-fifth day—Mercury Expedition Number One resuming contact, via etherline code radio, after three months. Operator Gillway reporting.

Well, no lives lost! It was my sad duty, both on the Mars and Venus expeditions, to report lives lost after a period of stay. Five men on the Mars expedition, four at Venus. But none here—so far. It has become almost an obsession with us to keep up the record. We all ten intend to return.

Or we'll all ten stay, if we fail to rescue our cached fuel. It is still buried under a lake of mercury metal, as when I signed off three months ago.

To recapitulate, eight men were stranded on the pyramid, surrounded by a sea of silvery mercury that had swept down, like a melted glacier,



Tarnay went down till the mercury bubbled over his head-piece

A "Mercury Expedition Number One" Story

from near the Night Side. It had carried our ship, with Karsen and myself in it, out into the Day Side, beaching it finally.

There we were, separated by that dumbfounding event, with the eight men on short air-supplies for their breathing helmets.

I believe I reported that the ship's engine had been damaged. Karsen examined it frantically. He has only one hand—one was lost on Venus. There had been some talk, before we left Earth, of substituting someone else for Karsen. But it is his mind and knowledge that count. He knows rocket engines from A to Z.

Once he located the trouble, he quickly did the work. I was little help, with my own broken arm. It was simply a short in the distributor system. Yet a two-handed man, without Karsen's keen brain, might not have found that short in time to save the stranded men.

Karsen also took the controls, his one hand flying back and forth deftly. He raised the ship, rocketed along, and brought her down with a splash of mercury metal near the pyramid. The pyramid was the only thing that stuck out above that strange metal sea, for miles and miles.

Waving in joy, the eight marooned men climbed down to the mercury level and ran for the ship. That is, they tried to run. It was ludicrous, even to me with the pain of my broken arm. Von Zell, who was first, should have known better, with his chemical knowledge. His feet skidded under him, like a poor skater on ice. He fell on his chest, knocking his breath out. That was lesson two, that mercury is hard, even though a liquid. It was equivalent to falling flat on water, from a high springboard.

The others wisely watched Von Zell, learning from him. He came to his feet carefully, sinking to his lower ankles in the dense liquid. When he lifted one foot, in the walking motion, the other slid back. There was no traction, as on very smooth ice. Finally, in disgust, he dropped on all fours and inched his way toward the ship. Thinking of a better idea, he lay

flat and rolled himself along. It was like rolling across a yielding cushion.

"At your age!" said Tarnay banteringly, through his helmet-radio. They were all laughing.

But they stopped laughing when they tried it. We threw Von Zell a rope, when he was near, and dragged him in. The others were likewise rescued from their floundering.

One by one they came in the airlock, then the cabin, and ripped off their air-helmets. They had been on their last breaths of oxygen from the depleted tanks.

Parletti, in fact, came in purple-faced, and collapsed. Just in time, for him. He came to quickly at a whiff of pure oxygen. Captain Atwell and Markers came in supporting Ling between them. Ling's face and hands were blistered from his close encounter with the steam-breathing dragon. He was weak, but smiling gamely. Salves were applied to the burns immediately. Also Parletti set my broken arm.

We were all laughing, yelling, overjoyed at being together and safe again.

All except Swinerton. He looked sadly out of a port.

"Damn!" he grunted. "That dragon is buried under it. I wanted to dissect him. A new form of life—silicon base instead of carbon. Damn!" Biologist to the core.

"The dragon—and our reserve fuel," reminded Captain Atwell.

At that we all sobered. Without the fuel we had no way of leaving the planet.

Hello, Mars Expedition Number Two! Glad to know you've had no trouble yet—due to our previous pioneering, as you put it. Thanks for giving us so much credit.

ONE Hundred Forty-Sixth Day. Still in recapitulation—

We talked over our situation the next day, after resting up. Somehow, we had to get our buried fuel out. We coasted the ship to the spot, on easy rocket-blasts. The ship skimmed along lightly, hardly denting the mercury lake's surface. Luckily, in forethought, Captain Atwell had had



**BIOLOGIST
SWINERTON**

Markers take position records, both by the Sun and by landmarks. We knew we were floating within fifty feet of the spot. But how to get down through perhaps thirty feet of mercury metal?

At first thought it might seem easy. Mercury metal isn't solid. Simple to send a man down, either in a sort of "diving suit" or caisson. We tried it, of course. But remember how water pressure builds up to crushing force, even within thirty feet. Mercury metal has a pressure fourteen times greater, because of its density. Even cutting that to two-fifths, because of this planet's light gravity, it's tremendous.

We welded together a steel pressure-suit, tearing down the partition between our bunkroom and main cabin mar material. Tarnay volunteered. The problem was how to get the man and suit to sink! Even lead floats on mercury. We finally hooked together handrails, and *pushed* Tarnay down. Tarnay went down till the mercury bubbled over his head-piece, and then yelled in pain, through his helmet-radio.

When we hauled him back, we found his legs wedged in. The terrific pressure had squeezed the two sides of each leg-hollow together. Had the metal cracked, Tarnay would have "drowned" in a unique and horrible way—sucking mercury into his lungs.

Tarnay had bloody leg bruises, and has a limp now, permanently. We didn't try that any more. We talked of making a diving bell, but Ling showed cold hard figures. The walls would have to be a foot thick. We would need the forge of a battleship plant to make it. It was out of the question.

We looked at each other then. Only thirty feet under us lay our cached fuel. Yet it might as well be at the

center of the planet. Reaching it directly was impossible, we knew that now. It was comparable to diving through four-hundred feet of water, with no special equipment to start with. And yet we have to get it—or stay on Mercury.

I say "have" because we still haven't solved the problem! And our date for departure, at this conjunction, is only nine days off. We may have to try a desperate measure we've thought of. It will cost a life.

Thanks for your sympathy, Earth. It counts more than you know.

ONE Hundred Forty-Seventh Day.

Our next step was to reconnoiter all around the mercury lake, to see what we were up against. It is about five miles in diameter, resting in a hollow between the Day Side mountains and the Night Side's frozen ridges. At one end it laps against the valley crest, from which the dragon came. At the other end it stops against a plateau-cliff.

It is beautiful, and hateful—this mercury lake. Its constantly quivering surface shines like soft silver. There is a steady low thunder from all sides, as it throws a "surf" against its bounding edges.

Parletti says there is probably much free mercury metal on this unweathered planet. Lakes and pools of it. When libration brings heat, it evaporates. When libration brings the Night-Side cold, it freezes into glaciers.

But unfortunately, in our Twilight Zone, it will neither evaporate or freeze. It will simply stay till some geologic disturbance opens a way and lets it drain to some other hollow.

And that was the hope we'd been living on, for the past three months—that perhaps on the edge of the Day Side a leaden mountain would melt away and let the mercury through. Now that hope is dim. And we can't wait too long. We haven't made a decision yet. It is a strangely hard decision to make. To clarify this, I'll have to tell of our other activities in the past two months.

Captain Atwell, when we began our wait, suggested that we all continue our science studies. No need to sit and brood about the buried fuel.

An exploratory trip to the Day Side was organized, for a glimpse into that seething hell— Captain Atwell, Parletti, and Ling. They broke out seal-suits for the purpose, equipped with battery-operated cooling units.

We had parked the space ship near the pyramid. Anchored is the word—with a steel chain. They started from there, on a steel “raft.” We had devised that previously, when navigating the lake. Paddling sent the raft along at surprising speed, skimming like a cork over the oily-smooth liquid metal.

Beaching near the Day Side, the party climbed a ridge and penetrated thirty miles beyond, on foot. Strange exploration. They skirted bubbling pools of molten lead, bismuth, tin and cadmium. Out beyond, all was blinding brilliance, under the rays of a giant sun only thirty million miles away.

Metallic mountain peaks, plains and escarpments stretched ahead, burning hot, sparkling like factory-made trinkets. It looked like a model of a world, fashioned out of metal by some giant metal-worker. Steamy metallic vapors spiraled into a dazzling sky. It was as bright and hot as the inside of an electric furnace. Utterly dry, lifeless.

No, not lifeless, for they saw two of the frightful silicic dragon-creatures winging majestically in the distance. How they live and *what* they live on out in that corner of Hell is an appalling mystery. Future biologists will have a lifetime of study ahead of them on that point.

They saw a mirage, too. A startlingly clear, detailed picture refracted through the metal-vapor atmosphere ahead. It mirrored a vast, molten ocean that stretched to all horizons, with “white-caps” of coppery metal splashings. No man-made vessel could sail those violent waves, stormier than any Earth typhoon. Substitute liquid-metal “rollers” and metal-vapor “wind” for water and air and you have forces that would crush a battleship like an eggshell.

The mirage was a mere glimpse of what lay beyond, for thousands of miles under the direct rays of the Sun. It glistened so brightly that the men’s eyes hurt behind the darkened visor-glasses.



They turned back when the outside temperature had hit 300 Fahrenheit. Their cooling units were balking. The heated underfooting worked through their vacuum soles. They lost five pounds each, in perspiration.

“Worth it,” Captain Atwell said. “Sight you can’t see on any other planet.”

Markers sends along this bit of information. Sun-spot barrage due on Earth any minute. Aurora displays will be particularly brilliant on Earth in the next 24 hours. Markers suggests black-outs of all cities within range, to enjoy the spectacle. In the war-days of last century, blacked-out cities saw memorable displays.

ONE Hundred Forty-Eighth Day.

Captain Atwell also made an exploration to the Night Side, with Swinerton and von Zell.

The battery units of their suits were this time hooked to heating-coils. And well they needed them. The temperature dropped and dropped. Thirty miles beyond, it was 200 below. Beyond that, out where the Sun’s rays had never shone for staggering eons of time, it must finally reach quite close to Absolute Zero, more than 500 Fahrenheit degrees below zero.

A white tufting of “snow” lay over everything out there, within the edge of the eternal Night Side. A snow of frozen gases. Sluggish streams of liquid air flowed from beyond and steamed into vapor. It is from here that the Day Side gets its constant replenishment of atmosphere. In fact, there is a steady “trade wind” across from the Night Side to the Day Side, like the trade winds of Earth caused by equatorial and arctic winds circulating.

Von Zell described the scene somewhat poetically. Eternal night.

Bright stars like jewels in the jet drapery of space. Earth, Venus and Mars all in the sky. Mars low and garnet. Earth higher, a beautiful blue star. Venus shone so brightly that they thought it was another moon of Mercury, besides the one discovered by Markers. Venus from Mercury is the brightest planet, as seen from any other planet. They saw Markers' moon, too—he named it Phaeton—diving up and then down in a swift arc, as though looking for the Sun.

Swinerton suddenly stooped, with a startled cry. A biologist, he hardly cared about the magnificent firmament. His eyes had spied a tuft of green moss-algae. Life, out in this bitter frozen waste!

Almost feverishly, he picked up a lump of metal with a pitted depression and placed some of the algae in this natural container, for later examination under a microscope.

They did not stay long. Captain Atwell snapped a roll of film of the weird, chilling scenes, and they went back. Suddenly Atwell's heating-coil went dead. It was all that protected him from lethal cold. He broke into a run, to work up a sweat. Von Zell and Swinerton dragged him between them for the last mile, when Atwell had gone numb.

He was brought into the ship unconscious and frost-bitten. Parletti stripped him and rubbed him down. He came to, with no worse effects than a bad cold.

"Cheated death again, didn't we, men?" he said with a grin.

We burst out laughing, then, at Swinerton. He was staring in dismay at his knapsack. Silvery mercury metal was dribbling from it. The metal lump he had picked up to carry his precious algae in had been mercury frozen solid, out there on the Night Side. Here, naturally, it reverted to liquid form, crushing his algae.

Von Zell was screeching. "I knew it all the time!" he gasped, holding his sides. "I knew it was mercury! I couldn't resist letting you gravely carry off what would become a handful of running metal!"

And then, before poor Swinerton broke down and cried, as he seemed

about to do, von Zell opened his own knapsack and revealed more of the algae, safely carried on a slab of hardier metal.

Swinerton later found the algae to be cold-resisting spores, accidentally blown to the Night Side, waiting patiently for the touch of life-giving sunlight. They had waited perhaps thousands of years already, in suspended animation. Would they wait all eternity for a sun that would never rise? The thought awed us. The stuff of life, of which we are part, challenges infinity.

But we all hated the sight of that mercury dripping from Swinerton's knapsack. It reminded us of the vast lake of it all around, beneath which was buried our reserve fuel.

Hello, Venus Expedition Two! Congratulations on your safe landing. The news was relayed to us through the Earth etherline station. If you think it's wet there, at first glance, wait till the daily cloudburst comes! But after it's over, you'll be treated to rainbows that will knock your eye out.

ONE Hundred Forty-Ninth Day.

After that, we avoided the Day Side and Night Side entirely. The only habitable part of Mercury is this narrow Twilight Zone, circling the planet. It is all we are really interested in. There is life, here in this zone. And the pyramid.

Robertson, poking around like a human bloodhound, finally found an entrance to the pyramid. A small square tunnel, set high, like the shafts in Earth pyramids. He dutifully reported to Captain Atwell, before rushing in. Atwell took Parletti and Robertson with him, to investigate.

More than our interest in Mercurian phenomena, almost, is our breathless wonder about the ancient Martian colonizers, and why they set up these time-defying structures on Mars, Venus, Earth and now Mercury.

Atwell and his party found a central chamber, apparently once living quarters. More, they found a shaft dropping straight down into lightless depths, far below the foundations. Returning with more men, Cap-

tain Atwell allowed Robertson to be lowered on a long rope.

Robertson stayed down for hours, till we were nervous about him. Finally he jerked the rope and was hauled up. He told us what he had seen. His eyes were faraway, as though he had looked into a past age.

He had found the chamber below a gigantic one, braced with metal beams that on erosionless Mercury had lasted without collapse. His flashlight revealed huge enigmatic machinery, most of it twisted and torn as though by some explosion. Broken-off cables had obviously led through wall-conduits to the pyramid's apex.

What energy or force had the underground machine produced, radiating from the apex? The pyramid on Venus had had similar machinery at the apex, but long since reduced to rust by the slow bite of water-vapor. The pyramid on Mars perhaps has the same machinery underground, filled in long ago by drifting sand.

There is some common denominator to it all, Robertson muses. As for Earth, the actual Martian pyramid or pyramids there must have been destroyed by some natural or artificial event. The Cheops and other Egyptian pyramids are simply copies of the Martian. The old Egyptians had perhaps deified the Martians and their works. Their bird-beaked god Osiris is suspiciously like an insectal Martian with his natural proboscis.

ROBERTSON says Holloway and his staff of translators on Earth will eventually run into the explanation of the true purpose of the pyramids on four—or more—planets. Simply sturdy stations for their interplanetary communication system? Robertson says no. The machinery he saw is designed to hurl out tremendous forces, not just etherline impulses. It is mysteriously linked with the vanishing of the Martian civilization.

Captain Atwell, Parletti, Markers and I are the most intrigued, besides Robertson. We were among the first men to reach another planet—Mars. We still remember that first incredible shock—a pyramid on another world!

The main purpose of our expedi-

tions has been to pioneer for future colonization. Yet at times we find our digging into past history far more significant. We prepare for the future, but our eyes turn always back. Back to a hoary, ancient story of another civilization that stirs the blood and makes us feel like scavengers in the ruins of a mighty but dead city.

Time has wiped away all but a whisper of that great Martian saga. As Robertson put it, rather theatrically: "If only these stones could speak!"

Attention, Mars and Venus expeditions! Markers has just spotted a small new comet coming around the Sun and heading out again. Please watch for it and take readings of its course. Correction—Venus expedition excused, since astronomical observation is impossible through its dense cloud-packs. But watch for it on Earth and Mars.

ONE Hundred Fiftieth Day.

All this while, you understand, we had been waiting and hoping the mercury lake would roll away somewhere. Parletti took daily measurements of the mountains melting on the Day Side barrier, to see if one would eventually open a gap for the mercury to pour out there.

But our hopes faded, as the weeks passed. The mercury lake might very likely remain in its new bed for years. Years! We shudder at the word. Our food, water and air supplies can't be stretched more than five or six months. We can't gather food here. The metallo-organic life of Mercury would be sheer poison to our metabolism. Air and water are contaminated hopelessly.

Tarnay showed us the way out of our bleak prospect.

He proposed dynamiting the valley-crest, against which the mercury lake lapped. Our fuel would do it, open a gap. Into this gap the mercury would pour, down into the valley which is at a much lower level. It would destroy all that valley's life, but that is the harsh rule of survival.

That was ten days ago, with take-off time dangerously near. We planned the dynamiting eagerly. And then, the next day, we paused.

I mentioned before that it would cost a life. Swinerton is down in that valley—lost.

He had gone down several times, collecting biological data on the strange indigenous life of Mercury, remnant of a once flowering fauna and flora, when there was rotation. Someone else always accompanied him. It was part of our caution against losing a man. Captain Atwell, fate willing, was determined to bring us all back to Earth alive.

Tarnay was with Swinerton, nine days ago. Swinerton was apt to run off abruptly, seeing some new plant or creature. Tarnay suddenly found him missing. He called again and again via helmet-radio, emptied his gun in the air, and searched in wide circles. Informing us, seven men joined the search, but Swinerton had vanished into thin air.

We've been firing three shots over the valley every hour since then. At my radio, I've been sending out a call in alternate hours. Daily search parties have almost beaten the valley vegetation flat.

"I know he's alive!" Captain Atwell keeps saying. "We'll wait till the last possible minute before dynamiting the gap. The mercury flood would make his death certain."

We all feel he might be alive. The air in the valley floor is thin, but pure and breathable. None of the heavy, poisonous metallic vapors is in it, as elsewhere. Swinerton could therefore breathe and live, after his helmet-air ran out. He carried a week's full food and water rations in his knapsack, enough to sustain life for at least two weeks if budgeted.

IS Swinerton alive, lost somewhere in the dense, tall reed-forests down there? Wandering in dazed circles perhaps, and unable to hear our signal shots in the thin air? His helmet-radio damaged? We don't know.

Captain Atwell tries not to show it, but it's grinding his soul to shreds, to lose a man after all.

"Do we always have to bargain with death?" I heard him mutter once, staring down into the valley.

We all hate to pay the price of one

life, even though it saves nine.

The deadline for our departure is close. Captain Atwell just announced that tomorrow we will blast open the gap. We will barely have time, after the mercury has drained away, to retrieve our fuel and take off. Earth is almost at inferior conjunction, on our side of the Sun. Another day and we'll be sweeping past, on another swift revolution around the Sun with Mercury. We can't stay four more months.

Thanks for the music broadcast, Earth. It has helped lighten our spirits. We haven't felt like smiling for a week.

ONE Hundred Fifty-First Day.

Swinerton is back! We're not paying the price of a life after all!

All was ready this morning for the blast. We had run the ship up on the higher slope of the plateau edge, safe from danger. Packing all the remaining fuel into one drum, we set it in the hole dug at the strategic spot. Karsen set up a timed clockwork, with spare engine parts, that will detonate the fulminate-cap.

But before we set it, a shot quivered through the air, like a lost wail, from the valley below! Rushing down, we found Swinerton stumbling along, panting in the skimpy air. Though rather gaunt, unkempt and weak, he seemed all right.

Except his eyes. There was a strange look in them.

He told his story. Wandering away from Tarnay, ten days ago, he had half-fallen into a cave-entrance covered with thick foliage. The fall damaged his helmet-radio, so that he couldn't call Tarnay. Foolishly, as he admitted, he explored the cave instead of coming right out. But not simply out of the little-boy spark of adventure that lurks in all humans. He seemed to hear voices, somewhere back in the cave!

The next thing he knew, he was lost. The cave had opened out into several branches. He didn't know which was his. He wandered on—for a week! He had stumbled into endless catacombs, like those of Mammoth Cave on Earth.

Parletti interrupted at this point with a nod.

"I suspected so. The strains between the heated Day Side and the congealed Night Side produced those caverns in the Twilight Zone. It also explains the pure air in the valley. Underground flows of liquid air, from the Night Side. Meeting heat from the Day Side, it evaporates and seeps out constantly into the valley floor."

Swinerton went on, and now we noticed his eyes telling us he was going to say something amazing.

All the while he wandered in the labyrinth, eating and drinking sparingly from his rations, breathing the fresh air, *he kept hearing those voices*. It was maddening, he said, like ghostly echoes of lost souls who had died here.

Then suddenly he stumbled on them.

I don't vouch for what follows. Captain Atwell says to report it strictly as Swinerton did.

Vegetable intelligence, in brief. A group of mushroomlike growths, in the phosphorescent cavern, rooted in the soil. The thick stems held large white pulpy masses, convoluted like—well, like brains, Swinerton says. And the "voices" he had heard had actually been telepathic impulses between them!

"Telepathy? Bah!" said von Zell. "All caves are full of murmurs."

"Telepathy," Swinerton insisted. "What's fantastic about that? Way back in 1933, Rhine first proved its existence. Not much progress has been made, but I think it was only last year, on Earth, that two men actually exchanged conversation for an hour, in separate sealed rooms."

We could accept that.

"But those—those brain-plants!" said Ling. "Preposterous! Did you bring one back?"

SWINERTON recoiled as though the suggestion were in extremely bad taste.

"No. I had no right to touch them. They are living minds, far more intelligent than we are!"

Swinerton went on. He had sat before the plants—whatever they are—

for three days. Trying to communicate with them, of course. At first, he says, they seemed to ignore or resent his presence. Then finally, they had answered his mental questions.

They are the end-product of Mercurian evolution. Mercury, smallest planet, had cooled first, and spawned life. They had reached their peak perhaps a billion years ago. They had colonized the Solar System long before the Martians. So long ago that no stick or stone was left of their doings.

But it didn't matter, the brain-plants intimated—according to Swinerton. They had evolved further, given up interplanetary exploits as frivolous and puerile, and passed into a vegetative stage. When Mercury's rotation ceased, they took root in the catacombs of the Twilight Zone. They had been there for at least a million years!

We were as dazed as Swinerton when he finished. The appalling sweep of that story chills the blood, with its suggestion of futility. There was silence among us for quite awhile. We didn't know whether to believe.

Karsen aroused himself first.

"Our deadline is here. We've got to leave today."

"Set the time-detonator," nodded Captain Atwell. "Thank the Lord you're back, Swinerton. I swore I'd bring all you men back, and by heaven I will after all!"

When Swinerton found out what we were doing, he let out a wild cry.

"You can't do it!" he almost screamed. "You can't flood the valley with mercury. It'll plunge through all those caves and crush the brain-plants."

"It's they or us," Atwell said.

"You say you don't want to sacrifice life," Swinerton said with a strange bitterness. "But you are. You're destroying plant-minds that are infinitely finer and live a far more beautiful mental life than we coarse brutes that think we're civilized."

"But what good are they? We're not killing them wantonly. This is part of space pioneering—"

"Meaningless! It's all meaningless. They went through this stage and it means nothing. It's all futile,

senseless—"

Swinerton's eyes went wild and he began to run back into the valley. Pityingly Captain Atwell ordered him caught and locked in the ship. We don't hold it against Swinerton. He'll get over it.

We're ready to set off the blast. Will resume after it's done.

I can hear Swinerton pounding against the door, yelling. He's still madly insisting that we must not drain the mercury into the valley and kill those odd plant-creatures.

We're not losing a life, as we set our hearts on. But we hope we're not losing a mind—Swinerton's.

Stand by for the blast.

ONE Hundred Fifty-Second Day.
The mercury lake is gone. All went as planned.

The blast undermined a whole section of the valley-crest. Like a thousand Niagaras, the mercury metal thundered down into the valley. It was an awesome sight, from our safe perch on the plateau. Plants, reed-trees, animals—all vanished beneath that silver flood.

Imagine, if you can, Boulder Dam dynamited and letting not water but mercury spurt through into a basin filled with teeming forest life. Imagine millions of gallons of liquid metal hurtling down, with an impact that seemed to shake the whole planet from end to end.

Earth has its glaciers of ice and floods of water. Mercury has glaciers and floods of mercury, on a scale a hundred times more destructive.

We were startled to see the pyramid collapse and go along as bobbing bits of stone. But no man-made, nor even Martian-made structure could withstand that smashing, churning, roaring avalanche of metal fluid.

Robertson let out a groan.

"Good Lord! Why did the pyramid have to go? It might have revealed the secret of the Martian Age, with a little more study."

We consoled him by pointing out that there must be other pyramids on Mercury, with their perfectly preserved machine chambers. The Martians must have set up more than one,

on Mars, Venus and Mercury, or we would not have found them so easily.

Within an hour, the mercury lake had drained down, covering now the valley floor. Green and furry debris bobbed on its surface, and a film of organic oil. At one stroke we had wiped out all that life. But again, as with the pyramids, there must be other valleys. We had not consigned the life-forms to extinction.

"Still," sighed Markers, turning away with a shudder. "I almost have the feeling we *murdered* those—"

He stopped, but we all knew what he meant. We know Swinerton couldn't have imagined the whole episode of the plant-brains. Has our record been broken after all? Have we saved our ten lives, at a cost in other lives that can't be reckoned in any terms we know?

We don't know. We almost forgot to retrieve our fuel, thinking those strange thoughts over moodily. Captain Atwell finally led five men to the spot, which will now be uncovered. It will be rolled back, a drum at a time. They should be back soon.

Well, Earth, throw out the anchor! We'll be there soon.

Hello, Venus! Sorry to hear of one of your men dying, from the death-mold. Keep your courage up. You'll lick the death-mold with all your UV-apparatus.

Stand by—

Startling news!

Captain Atwell and his party just returned—without the fuel. It wasn't there, where we buried it! Will resume later, after we have discussed this alarming turn of events.

ONE Hundred Fifty-Second Day
—Noon.

We have the fuel, but it's a strange story.

Our first thought, when Captain Atwell announced the stunning disappearance of our reserve fuel, was that the mercury tide had ripped it along, down into the valley. We even looked down there, expecting to see smashed drums and perhaps a film of useless fuel over the new lake.

There were no signs, but nevertheless the fuel was gone. We stared at

one another bleakly. We were marooned on Mercury.

"Swinerton!" Parletti suddenly exclaimed. "What was he shouting before?"

But instead of running to him, Parletti ran outside the ship, and began peering in all directions. He pointed suddenly. Then we all saw it—a drum of fuel a few hundred yards away. We ran to it. It was whole. It rested a few feet above what had formerly been the mercury-level of our lake. The other drums were scattered along the plateau slope, for a mile along, all above the mercury-line.

"Do you know what it means?" said Parletti. "It means that our fuel has been here, high and dry like this, for *three months!* When the mercury first flooded here, from the melting glacier, it simply picked up the drums and finally tossed them here. All the while that we waited, our fuel was waiting for us to see it. And there was no need to at all drain the lake!"

We looked at each other sheepishly.

Like fools, though we had intelligently remembered that almost everything would float on Mercury, including our heavy ship, we had stupidly failed to think of our fuel bobbing right up and floating away. Fortunately the mercury from the glacier had seeped down gently enough not to smash the drums, but merely toss them up and whirl them away. The shore it had tossed them on was opposite the glacier-source.

Our faces are red. How could ten men miss that elementary thought?

Well, Earth, how come you didn't think of it? Billions of you! Sometimes the obvious is too profound to grasp.

We stored the drums in the ship. Swinerton had been quiet for hours. When we opened his door, he slowly looked up at us.

"I saw those drums," he said in a hollow voice, "just after you locked me in. Why didn't you listen? Well—too late now. We're ready to leave,

aren't we? Captain Atwell, I commend you on bringing ten men through four months of the dangers of Mercury—without sacrificing a life!"

We all winced. We knew what he meant, why his tone was infinitely ironic. He was looking down into the valley, under whose floor a series of catacombs were choked with crushing mercury.

We're ready for take-off. Stand by—

ONE Hundred Fifty-Second Day
—Afternoon.

Take-off successful, but trouble developed.

At a height above Mercury of a thousand miles, the engine began missing. Tarnay reported that a complete rear jet-bank is out of order. Without that, we had no chance of building up enough velocity to reach Earth in less than a year.

Rather than risk a landing back on Mercury, with our crippled rockets, Captain Atwell pointed out Mercury's moon.

We have landed on that, having no maneuvering troubles because of its extremely light gravitation.

This tiny moon is little more than a big rock, or mass of metal. We will try to repair our damaged rockets. As you might guess, the mercury lake caused it. Its vapors, constantly surrounding the ship, worked into the outside tubes. It amalgamated with parts of the jet-valves, weakening them. Mercury vapor is a destructive influence with all harder metals, in time. That was another thing we failed to foresee.

To be candid, our entire rocket system wouldn't stand an hour's high-speed operation. The repair job—well, we can try.

The outlook is grim, but we haven't lost a life—yet. My battery power is needed now for welding. Will resume when conditions warrant.

Mercury Expedition Number One signing off.

SCIENTIFACTS

INCREIBLE BUT TRUE

A SPECIAL FEATURE OF INTERESTING ODDITIES

by MORT WEISINGER

ECLIPSE MARATHON

THE longest possible eclipse of the Sun can last only 7 minutes and 31 seconds! No astronomer will ever see an eclipse of eight minutes!

A total eclipse of the Sun occurs when the Moon's shadow touches the surface of the Earth. The shadow is a cone; so it is widest where it hits the Earth, where the Moon is nearest the Earth and the Sun farthest.

Furthermore, to get the longest period of eclipse, the shadow must fall on the equator, so that the observer may travel fastest with the shadow, in order to have the longest possible eclipse.

Under these conditions, the maximum length of time the Sun is obscured can never be more than 7 minutes and 31 seconds.

FORTY MILLION YEARS OLD

THE most ancient of living known mammals is the—rabbit!

Rabbits, together with the opossums, are the most ancient of the living known mammals on our continent. They date back to Eocene times some



30,000,000 to 40,000,000 years ago.

This is one of the incidental findings in the great exploration of ancient life on this continent by Dr. William B. Scott, of Princeton University. Dr. Scott has greatly extended science's knowledge of the animals of the past, both those whose

descendants are now living and those whose lines have become extinct.

COMETS' ORIGIN

COMETs do not hail from outer space!

Comets are not merely wanderers through space but are actually members of our own Solar System, according to a prominent astronomer.

Their age, however, would not make them part of the original Solar System, which has an existence of 10 billion years, but would seem to indicate that they were captured by the Sun as our System moved through the heavens one million years ago.

The Sun is traveling through space at the rate of $12\frac{1}{4}$ miles a second. This means that a million years ago our System was seventy light-years away from its present position in the direction of Orion. Further evidence supporting this theory is the fact that all comets have the same spectrum. Furthermore, we do not seem to get any new comets!

THE ETERNAL METER

THE length of the meter can never change!

The standard meter is the distance between two fine lines engraved across a certain platinum bar when its temperature is 0° C. This bar is kept in the Bureau of Weights and Measures in Paris.

To guard against the chance that this extremely precious platinum bar will ever be destroyed or even be slightly altered in length by a rearrangement of the atoms of platinum within it, Albert A. Michelson, in 1892, measured its length in terms of the wave-lengths of three pure radiations of light due to incandescent cadmium.

Exactly 1,553,163.5 waves of one of these kinds of light, if placed end to

end, would just equal the distance between the two lines on the standard meter bar! The bar may shrink or expand—but the light measurement is eternal!

SCIENTIFIC BAFFLER

Want to win the Nobel Prize? Then explain this following phenomenon—a baffling anomaly in Nature that stumps all scientists:

A magnet loses its power of mag-



netism when heated beyond 800 degrees Centigrade. However, it is definitely known that the Earth, with a molten interior at enormous temperature, has a gigantic magnetic field!

How do you explain this terrestrial inconsistency? Nobody knows. Not even the new theories of Relativity Quantum Mechanics can help supply the answer.

THE SPEEDIEST OBJECT

DISCOVERED—the speediest object in the Universe!

The fastest known moving "object" in the Universe is a spiral nebula, a cluster of stars which is apparently moving away from the Earth at the rate of 2,348 miles a second. The determination of the speed was made by noting the spectrum of the nebula as compared with that of stars practically at rest with respect to the Earth.

If stars are moving away, the lines of the spectrum will be displaced toward the red, and if they are coming closer, they will be displaced toward the blue end of the spectrum.

This nebula is believed to be about 25 million light years. A light year is six trillion miles. Therefore the light we see from the stars was really emitted 25 million years ago, and in fact, for all we know, the star may have gone out of existence many millions of years ago!

EARTHQUAKE PROPHETS

SEISMOLOGISTS, working together with meteorologists, can predict earthquakes!

In a specially constructed vault, 20 feet below the surface of the Earth, seismologists daily go about the business of predicting earthquakes. Data concerning sun spot activities, supplied them by the meteorologists, influence their prophecies. For when the magnetic vibrations from sun spots cross the path of similar vibrations from seismic fault lines on Earth, an effect is produced.

This subterranean vault, the Ricard Memorial Observatory, in California, rests upon piers sunk into bedrock to make it free from all surface or near-surface vibration and to make it possible to record underground Earth movements without being affected by surface conditions.

Delicate electrical seismographs in this chamber register the slightest Earth tremor. Consequently earthquakes can be predicted long in advance.

PLANT PICNIC

MORE than 500 species of plants that eat flesh are today known to botanists!

All these plants turn the tables on Nature by eating animals, instead of



being eaten by animals! Most of these flesh-eating plants, it is interesting to note, grow in peat bogs where nitrogen root nourishment is lacking.

How do these plants snare their prey? In several ways: By trapping them with sticky substances; by "pitchers" that contain water and drown intruders; or through an irritation on the plant that causes it to set its tentacles in the prey.

THIS INCREDIBLE WORLD

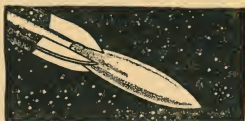
AN extremely sensitive current-measuring apparatus can detect an electric current so small that only

one electron passes along the wire in five minutes. . . . The entire surface of a normal lung has been estimated to be equal to the squared area of thirty-one feet on a side. . . . South of the Equator all climbing vines twine from right to left. North of the Equator they twine from left to right. . . .

It is estimated that there are 10,000,000 heliophobes (persons who burn and blister, but do not tan) in the United States. . . . One-third of all patents granted in the United States have never been used because the inventions they cover lack practical

commercial value. . . . Scientists can reproduce the light of a firefly artificially, but chemicals required to equal the light of a firefly cost about 17 cents. . . . The new metal, polonium, is worth 57,000 times as much as gold. . . .

Birds, like streamlined airplanes, take off into the wind. . . . Yellow ants in the Swiss Mountains always build their nests running from east to west. Mountaineers lost in fogs use the nests as compasses. . . . A recent U. S. Patent Office report claims that of all patents registered, almost a fifth are applicable to automobiles. . . .



HEADLINERS IN THE NEXT ISSUE

IMAGINE being able to dominate anyone in the world! Yes—anyone at all, regardless of who it is. You could rule a country, upset dictatorships, gain an incredible fortune, win the most beautiful girl!

That was the power Walter Padgett had, in Edmond Hamilton's complete novel **GIFT FROM THE STARS**. His will-power was scientifically demonstrated to be irresistible—and all he wanted was a raise! But getting that raise tossed him into mora hot water than if he had tackled the Axis single-handed!

You'll find Padgett, the human zero who wanted to be an important figure, in **GIFT FROM THE STARS**, published complete in the sciencefiction novel section in the December issue of **THRILLING WONDER STORIES**. It's a great novel!

* * * * *

WHY was there a wall around the Earth? Was it man-made? What motive would anybody have for belting the world with an impenetrable force? That was what Bill Hyatt, Chief Inspector of the International Police, had to figure out, and the story of his fight against the strange, terrible wall is complete in the novelet **THE GOLDEN BARRIER**, coming next month.

Don't fail to read the gripping account of a daring challenge to humanity! You'll hear more from G. T. Fleming-Roberts, famous mystery author, who has realized that s-f is the coming literature.

* * * * *

THAT swell cover next month illustrates Manly Wada Wellman's **THE LIFE MACHINES**, a thought-provoking complete novel of man who return to life—and find a weird successor to humanity! But Earth's new rulers are thoughtfully following man's path to suicide, till the Science Battalion proves that logic is not just a matter of brains!

* * * * *

YOU'VE read Gordon A. Giles' story in this issue, so you know the spot **Mercury Expedition No. 1** is in. Every day they're stranded brings them closer to doom! Can they escape? Find out in **VIA INTELLIGENCE**! You'll be startled by their discoveries! Next month!

* * * * *

YOU'LL find other fine stories by favorite science-fiction authors in the next issue of **THRILLING WONDER STORIES**, besides our regular caravan of exclusive features. **SCIENTIFACTS**, **SCIENCE QUIZ**, **STORY BEHIND THE STORY**, **LOOKING FORWARD**, **SCIENCE QUESTIONS AND ANSWERS**, and many others. And don't forget that every issue of **THRILLING WONDER STORIES** contains a complete sciencefiction novel!



Science Questions and Answers



LIFE OVER 100 DEGREES

At how high a temperature can animate creatures live a more or less normal life? Is there any information available on this subject?—E. L., Madison, Wisconsin.

Though most animals display their characteristic activities somewhere between freezing and one hundred degrees Fahrenheit, some species are able to tolerate somewhat higher temperatures. A study of the life at a hot springs in Algeria disclosed that frogs were abundant up to 100.4 degrees Fahrenheit, and were occasionally found at 102.2, though immersion at the latter temperature is fatal in about ten minutes.

A crustacean that was not found in water below 102.2 degrees, was to be seen in water as hot as 124.7 degrees.—Ed.

BULLETS AND BLOW-OUTS

Is there such a thing as a "bullet-proof" tire tube? Such an achievement sounds almost impossible.—M. O., Kansas City, Kansas.

Impossible sounding—but true! The U. S. Rubber Company has developed a tire tube that is bullet-proof in the sense that it seals itself after being punctured by bullets. In a test, according to company officials, one of these tubes was shot 29 times by army rifles, then sealed itself so well that "only a fraction" of the 60-pound air inflation was lost.

Moreover, it is asserted this self-sealing process can be accomplished at temperatures as low as 39 degrees below zero (F.). The new tube is being manufactured for the U. S. Army and also is being released for restricted use on law-enforcement vehicles.—Ed.

BACTERIA BLITZKRIEG

I know that bacilli are so small as to be practically invisible. Yet their rate of reproduction is so speedy as to eclipse any other phenomenon in Nature. Why, then, don't bacteria rule the world? What checks their growing population?—L. D. G., Chicago, Ill.

The average length of a typhoid bacillus is about 3 microns or 3 twenty-five thousandths of an inch. If we could magnify it sufficiently to equal in length a foot ruler, and then magnify the latter proportionately, the ruler would appear to be 20 miles long.

Bacteria are so long that a mass of cocci, no larger than the head of a small pin, would consist of some hundreds of millions of individuals. Water containing several millions of bacteria in each drop appears to be perfectly clear. It would require about 10 million millions of typhoid bacilli to weigh one ounce.

A bacterium enlarges and divides into two. If we start with a single bacterium which has just assumed an independent existence, at the end of one hour we would have two, at the end of the second hour, four, and at the end of the third hour, eight. In 72 hours there will be 5,736 million million millions.

If we assume that our original bacterium was a bacillus 3 microns in length, its 16 million descendants in 24 hours could scarcely be detected by even the most delicate balance, but the resulting mass, in 48 hours, would weigh a little over one pound and, in 72 hours, about 10,000 tons.

Bacteria, growing in a confined space and with a limited amount of food available, can keep up the ideal rate of multiplication for only a short time. Soon two factors—shortage of food and accumulation of deleterious waste materials—begin to operate, and the rate of multiplication slows and finally division ceases entirely. For a time the population remains stationary and then, sooner or later, death comes to the bacteria.—Ed.

WEIGHING BY COLOR

I read somewhere that scientists are able to weigh objects by their color. Is this process perfected?—K. B., Washington, D. C.

At the laboratories of General Electric, at Schenectady, N. Y., electrons have made possible a revolutionary machine that weighs by color—an electronic scale so sensitive that it can accurately give the weight of metallic particles so infinitesimal that they are 100,000 times too small to see.

Consisting of a series of photo-electric tubes and a dozen lenses, the amazing machine registers the color changes in chemical solutions as the metallic particle is added. The degree of color change depends on the amount of metal and, although the alterations in the hue are far too slight for the human eye to note, the electronic brain detects them and gives an accurate record of the indicated weight. Already this technique has been worked out for some twenty of the commonest metals and the list is rapidly being expanded.—Ed.

LUMINOUS ANIMALS

In a recent issue of **THRILLING WONDER STORIES**, in your informative department, **SCIENTIFACTS**, you listed several insects that were equipped with light-production organs. Is this ability limited to insects alone? Are there other organisms known to science which can manufacture light?—C. W., Ft. Lauderdale, Florida.

A survey of the animal kingdom discloses at least 40 orders containing one or more forms known to produce light. Truly remarkable cases are the luminous fishes of the Banda Sea.

Photoblepharon and **Anomalops**, whose light organ, just below the eye and specially designed for growing masses of luminous bacteria, has a rich blood supply, opaque screens to protect other tissues of the fish from the light, and a mechanism for turning the light on and off.

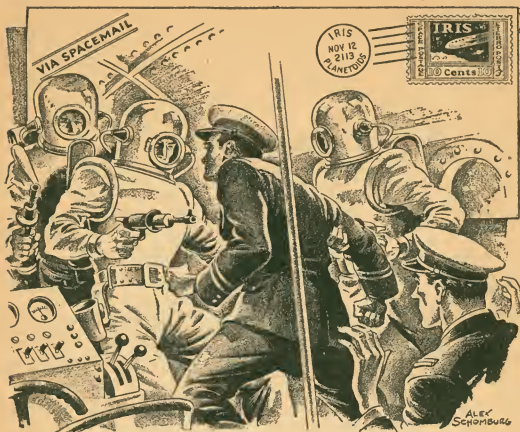
Luminous earthworms have been observed in various parts of the world. Caterpillars and fresh water shrimps have been known to become luminous, due to infection with luminous bacterial maladies.

Practically all higher forms luminesce only on stimulation and various means have been devised to bring this about. In multicellular animals we find developed, special glands for secreting luminous material or special organs of luminescence with accessory structures: shutters, reflectors, lenses, pigment screens and color screens, the whole forming a lantern.

Here we may see a use for luminescence, warning or frightening predatory forms, luring food, illumination or recognition signals in the bringing together of the sexes.—Ed.

THIS department is conducted for the benefit of readers who have pertinent queries on modern scientific facts. As space is limited, we cannot undertake to answer more than three questions for each letter. The flood of correspondence received makes it impractical, also, to promise an immediate answer in every case. However, questions of general interest will receive careful attention.

The Men Who Plundered the Spacemail Were After Rare Stamps—But Science Cancelled Their Plans!



Zach leaped forward, taking a daredevil chance

"SHALL STAY THESE COURIERS . . ."

By NELSON S. BOND

Author of "Parallel in Time," "Prisoner's Base," etc.

ZACH WHEATLEY turned away from the perils, his mouth creasing into a pucker. A slow, brown stream arced languidly across the control turret of the *Spica*, rocking the cuspidor.

"Iris, three points off the starboard vane," he said. "As if you didn't know."

Russ Hodges, S. S. P. lieutenant now on special duty as pilot-com-

mander of the *Spica*, stifled a grin. Discipline, he realized, was all right on a war rocket or patrol ship. But he had long since given up trying to convert Wheatley. He touched buttons on the panel before him.

"Braces locked, Wheatley," he called. "Fore jets fire!"

"Fore jets it is!"

"Extend luggers!"

Wheatley shoved his sturdy bulk

against a lever.

"Extend luggers it is!"

"Very good. Stand by." Russ rammed in the switch activating the pilot's perilens. On the visiplate sprang the image of a tiny, crudely spherical chunk of rock that was the asteroid Iris. Scarcely a hundred and fifty miles in diameter, Iris was a drab and desolate place, a mining outpost of the Intergalactic Metals Corporation.

As Russ watched, fingers poised over the controls, the asteroid fore-shortened, became a flattened saucer of stone. The ship shuddered violently from stem to stern as the lug-sail wings slid from their retracting ports and gripped the tenuous atmosphere of the planetoid. Wheatley, staring through the master lens, grunted his approval.

"Landing field below," he announced.

Russ saw the glistening metal hut on the edge of an arid plain. He saw the sudden flare of smoke that served as his "all clear" landing signal. When he saw the tiny, bulger-clad figure that ran from the hut to wave a delighted greeting, he cut all jets and threw the *Spica* into a closing spiral.

"Got their bag ready?" he asked Zach.

"Yep."

"Yes, sir!" reminded Russ. "Watch the formalities, Zach. While we're down there, I mean. I don't give a blast in space while we're alone, but—"

"Yes, sir!" grinned his assistant.

"And Zach," Russ gestured toward the huge cud in Wheatley's cheek. "Unload the cargo. The tobacco, I mean."

"*Nicotiana* to you," said Zach.

HE sauntered to the gaboon and unloaded his chew agreeably. Then he broke two bulgers from the locker, tossed one to his superior, and climbed into the other himself.

"Might as well put it on," he advised. "Plaice is a dope. Like as not, he'll come in and smell up the place with ammonia fumes."

Russ nodded and donned his own

space-suit. Just as he finished, there came a grinding jar. The *Spica* bounced, jolting both men back on their heels, then settled. Almost immediately the air-lock warning buzzed and they heard the asthmatic wheeze which meant someone was entering the ship.

"Right again, Zach," said Russ.

He closed his face port. Wheatley did the same. A few seconds later, the door of the control turret swung open. Plaice, Superintendent of the IGMC and official postmaster of the Iris station, bustled in, his face wreathed in a huge smile.

"Greetings, Captain!" he bubbled.

"Welcome to Iris again. Any mail for us this trip? We're hoping—" He stopped suddenly, staring at Hodges. "Why, you're not Captain French!"

"He's psychic!" growled Zach Wheatley.

Russ silenced him with a glance.

"No," he said. "I'm Lieutenant Russell Hodges, Solar Space Patrol. On special detail, Mr. Plaice."

Plaice showed his disappointment.

"We thought it was the mail ship —" he began.

"It is," nodded Russ. "We're carrying mail. I'll explain it all to you in your office. Wheatley, bring along the Iris mail, will you?"

"Aye—sir!" The last was an afterthought.

Wheatley tossed a slim pouch over his shoulder and followed the two men as they left the *Spica*. They walked across a few rods of Iris soil, and ducked into the doorway of the mine superintendent's office.

"There are two reasons," Lt. Russ Hodges explained, "why I'm covering Captain French's mail route for him this trip. One of them is rather amusing. It would be, except that it's causing a mild panic in the Postal Service. The other is more serious. It is—piracy!"

"Piracy?" Plaice repeated blankly.

"You've heard of Balder Sorenson, haven't you? The pirate who was exiled to the penal colony on Uranus a couple of years ago? Well, he has escaped. Don't ask me how. We don't know. The fact remains that he has

escaped. He has gathered together some of his old crew, and is now terrorizing spacelanes between Jupiter and Venus. But he doesn't have a large ship, like in the old days. He's using a small speedster. Consequently he's preying on the kind of craft that carry valuables in small bulk."

"Only," interjected Wheatley sourly, "he stuck his neck out too far. He held up the *Spica* on its last trip and there ain't nobody can do the P. O. thataway."

PLAICE looked at the SSP officer questioning, and Russ nodded.

"Precisely. That was a vital error on Sorenson's part. The police may be a little slow sometimes when it comes to apprehending criminals. But when bandits attack the mail—" He grinned. "Well, you know the traditions of the Post Office Department. Almost three hundred years old, but the mail must still go through."

"Yes, I know," Plai ce said. "Something else about 'swift couriers'?"

"Nor rain," quoted Russ softly, "nor snow, nor heat, nor gloom of night, stays these couriers from the swift completion of their appointed rounds." That's the motto of the Post Office Department. They held it way back in the days when foot-runners and the pony express carried the mail, then when the first airships hobbled along like winged snails.

"It still holds good today. Men on Venus, Mars, on the farthest outposts of Uranus and Pluto—men like yourself, lonely on spinning rocks no bigger than a mountain on Earth, depend on the postal service. For news from loved ones at home. For contact with a world they may not have seen for years. For money, payment for their labors—"

He grimaced. "The last is why Sorenson waylaid the *Spica*. A lot of valuables are entrusted to the mails. Actual cash. Negotiable stocks. Bullion of rare metals. It's estimated that Sorenson's haul netted him a cool quarter million."

"A quarter million!" Plai ce whistled. "Do you mean Venus dollars?"

"Earth! You see, now, why I've been assigned to this trip. Maybe you can't notice, but the *Spica* has been converted into a miniature man-o-war. Rotor guns fore and aft. O'Donovan rays at the ports. If Sorenson attacks us—"

He paused significantly. Zach Wheatley chuckled.

"Boy, you oughta see me whangle one of them rotor guns! I knocked the living be-Jupiter out of a rogue asteroid at four thousand on the way through the Belt."

"You said there were two reasons, Lieutenant," Plai ce said, still curious. "The other?"

"Oh *that*!" Russ grinned. "It's about your latest stamp issue, Plai ce. What in blazes have you been doing out here? You've got the P. O. in an uproar."

Plai ce flushed. "There's nothing wrong with my issuing stamps," he said stiffly. "As postmaster of Iris, I have a government permit to do so. And I haven't been exceeding my issue allotment. I issue a five-cent, a ten, and a fifteen."

"Your five," said Russ, "is all right. So is your fifteen. But your ten—" He dipped a hand into his jacket pocket, brought forth a printed page torn from a book. "Get a load of this. It's a page from the newest Scott catalogue for stamp collectors. Check on your current ten-cent stamp, number thirteen-A."

THE postmaster studied the philatelists' catalogue. Under each pictured postage stamp was a listing which gave a brief description of the stamp, along with its value in unused and used condition. This listing read:

IRIS

MINERS' CONVENTION ISSUE, 2112

12.	5c yellow12	.35
13.	10c blue24	.60
13a.	10c violet	1000.00	3000.00
14.	15c sage green....	.60	1.45
14a.	15c dull green....	.75	1.80

Plai ce gasped. "H-hey, that's not right! They must be crazy!"

"Of course it's not right," agreed Russ. "It looks as if you let one sheet get out in the wrong color. They're calling it the 'ten-cent error' back on Earth, and the stamp collectors are bidding their ears off for copies of it. By the time the next catalogue is issued, the value may have trebled. The Post Office Department is plenty sore about it, Plaiice. They realize the value of new stamp issues. But if you're deliberately creating phoney 'errors' to clean up—"

"Wait a minute!" interrupted Plaiice hastily. "You don't understand. The whole thing's wrong! They've got the violet listed as the error. The *blue* is really the error."

"Ridiculous, Plaiice!" Russ snorted. "Every kid collector on Earth has a copy of the blue. The violet is the freak. There are two copies known to exist in Io City, Jupiter. One copy is in Dr. Holswade's collection in the Ceres Museum."

"I'm not lying, I tell you!" stormed the bewildered postmaster. "I print those stamps myself. I grind the dyes and carve the engravings. It's a hobby, I guess. It gives me something to do when the mining is slow. But I tell you I never printed a ten-cent blue in my life!"

Russ studied the man thoughtfully. Either Plaiice's sincerity was unquestionable or the man was a darned fine actor, and a liar to boot.

"There's something fishy somewhere, Plaiice," he said slowly. "If you are right, these 'errors' are forgeries, and punishable as such. You know that, of course?"

"Naturally!" roared Plaiice. He moved to his locker, began to scramble into his bulger. "Put on your space-suits, gentlemen. I'll show you my workshop right now."

"Bulgers in a building?" Zach Wheatley said. "Why?"

"Well," Plaiice apologized, "the workshop's in a wing. An afterthought, and it's not altogether airtight. You don't exactly *need* a bulger, but it's better that way. It's warmer, and you don't get the ammonia fumes that creep in. Ready?"

He led the way to the workshop in

which he prepared the postage stamp issues that were used for Iris franking and collected so eagerly by philatelists throughout the Solar System. Russ had only to glance at the equipment to see Plaiice was telling the truth. But to clinch matters, Plaiice opened a workbench drawer. He dragged forth several dozen sheets of gummied adhesives.

"See?" he said. "There's the current ten. Violet."

RUSS nodded helplessly. He had often seen the supposedly normal ten-cent blue in friends' albums back home. The design of the stamp was the same—a crudely carved picture of a space ship jetting down to a space-weathered rock. The double inscription was in English and in the composite language, Universale.

"Iris Space Postage" was on one side. "Iris Eterro Postaj" was on the other. And beneath was the denomination, "10 cents."

Only the color differed from those copies Russ had seen. It was a bright violet, just as Plaiice had claimed it should be.

"You win," said Russ. "But all I've got to say is, according to Earth standards and Scott's catalogue, you have here about two million bucks' worth of rare stamps!"

"Whoever faked them," raved Plaiice, "whoever forged the copies made a blunder. Maybe they used an oxidized stamp as their guide. I don't know. Now, as to the fifteen-cent sage green, it is true that the color varies slightly. I've never been able to standardize it."

Zach Wheatley interrupted suddenly.

"You said you made your own dyes, Mr. Plaiice. What do you use?"

"I don't see that it matters to you," began Plaiice pettishly. Russ stopped him.

"Don't underestimate Zach, Plaiice," he said quietly. "He's been around. For a hard-bitten old spacehound, he knows more about botany than any man I've ever met. He studies it just for fun."

"Oh!" Plaiice coughed apologetically.

cally. "I'm sorry, Wheatley. This is all so upsetting." He frowned. "Now, let me see. I've been grinding my yellow from madder root. Alizarine, you know. The blue is natural indigo. And the violet is ground from the ordinary rock lichens that abound here."

"No anilines?" Zach said.

"Where would I get anilines? Iris is solid rock except for the scattered mineral deposits. There aren't any coal tar products nearer than Mars, though I did hear someone say traces of oil had been struck on Hebe." The superintendent-postmaster shrugged. "I tried to get the corporation supply ship to bring me some synthetic dye-stuffs, but they wouldn't. Said I was abusing company time, anyway."

Russ made up his mind suddenly.

"Let's go back to the office," he said. "I'm sure you're not responsible for the forgeries, Plaise. But there are a few unsettled points."

He separated the sheet of ten-cent stamps from the other, rolled them into a loose cylinder.

"What are you going to do, Lieutenant?" Plaise demanded.

"The only thing we can do. Take these back to Earth and put them on the market. The way I figure it, whoever printed those forgeries must have grabbed a monopoly on the *real* ten cent violets. They flooded the market with the phonies and let a couple of the naturals sneak out to establish the 'error' and make it valuable.

"Now, undoubtedly, they'll try to capitalize on their trick. Sell the real stamps at a staggering over-valuation. But if I can get back to Earth soon enough, we'll spike their guns. We'll put these violets on the market at normal price."

"Well, I'm grateful to you, Lieutenant," Plaise sighed. "I'm doing the best I can out here. I don't want anyone to think I'm doing anything unethical."

THEY were back in the office now, removing their bulgers. Zach Wheatley had been pondering silently ever since he left the workshop.

"Mr. Plaise, did you say lichens?"

he asked abruptly.

"What? Oh, yes. Ordinary lichens, ground into a pulp with water and a touch of potassium carbonate to hold it in solution."

"You got any of them lichens around here?" demanded Zach.

"Any?" Plaise snorted. "The rocks are covered with them." He turned to Russ. "Now let me have the mail, Lieutenant."

For the dozenth time since he had started this mail route among the planetoids, Russ experienced a heart-warming pleasure. He was helping Plaise distribute mail from home to the score of men who were Iris' inhabitants.

It was a simple thing, really. Plaise summoned the men from the mines. They came to the office one at a time, shuffling in their lead-booted bulgers, dirty and sheepish before the gaze of the trimly garbed SSP officer. But there was a touching eagerness in the way each took the slim bundle of envelopes bearing his own name.

Here was happiness on white paper, cased in a smooth, white folder. Here was new life and hope for them, a token that those on distant, scarce-remembered Earth still remembered them. Russ knew that in the three months' time that elapsed before the next mail ship arrived, these crisp envelopes he was now distributing would be dirty and frayed, worn with handling and numberless readings.

He wished he had three times as many letters for each man when he saw the way they fingered them, studied the return addresses, scanned the handwriting on the envelope, as if that also bore a message. He felt a pang of pity for the one man of the group who received no mail. He saw the swift flame of hope in the man's eyes die into shamed dullness. Russ made a mental note to see that the next mail would bring the disappointed one something, even if it were only a magazine or a letter from a Lonely Hearts club.

Then he collected their return mail, addressed to a dozen colonies throughout the Galaxy, but mainly to Earth. A slim note in Auld John MacAfee's

crabbed handwriting was addressed to Miss Dorothy MacAfee. A half dozen letters from young Billy Barstow were addressed to as many different young ladies. One thick envelope came from Bud Mullins.

"Treat that one careful, Lootenant!" Mullins grinned cheerfully. "It's got all my wages in it for the past three months."

He went down the line, and at last it was time to go. Plaice was the last to contribute to the fattening mail pouch. From his safe he dragged four weighty packages. He hesitated a long minute before handing them over to Hodges.

"As the postmaster, Lieutenant," he said anxiously, "I should have no doubts. But as the superintendent and paymaster of the Corporation, I wonder if I should send this through with you? This is the refinement of our last three months' work. It's worth—well, plenty! Don't you think I ought to wait until the next trip?"

Russ laughed. "There'll never be a safer time to send it through than now. We're armed to the gills, and just hoping to see Sorenson's ship."

Plaice sighed and reluctantly handed it over. He bade his visitors farewell. But at the doorway, Zach Wheatley was still frowning. He turned for a last word.

"That there lichen," he said. "Was it orchil? Gray-like, and kind of fuzzy around the edges?"

"It was gray," said Plaice, "but I don't know what you mean by 'orchil'."

Russ was waiting impatiently at the air-lock. Now he called out.

"Skip the botany lesson, Zach. We've got work to do. Come along!"

A few minutes later the *Spica* took off, zooming skyward on a belching tripod of flame. The next stop was Mars.

RUSS HODGES yawned and looked at the chronometer on his instrument panel. The hands were rapidly closing on the figure twelve. He reached toward the call button, then drew back. Better to wait another minute. Sleep was too

precious on these long drives to rob a comrade of a second of it.

But the door opened behind him. Zach Wheatley was already coming in to stand his trick at the board.

"Don't bother pushing, Russ," he said. "I'm here."

Russ yawned again.

"Good! I'm damn near dead. Trouble with these two-man flights is you never catch up on lost sleep. I've got a dead line on the Mars nineteen-point-oh-six orbit, Zach. Just hold to it."

"Are you telling me how to pilot?" Zach snorted.

"I couldn't tell you anything," Russ said lazily. "Not a thick-headed space-monkey like you. Well, see you later."

He went below. Wheatley hummed to himself as he glanced over the instrument panel. Direction, okay. Azimuth reading, okay. Shields up. Detection unit, check. He slid back his pressure chair, locked in the Iron Mike to hold her on course, and slouched across the room to the bookcase.

He was still worried about something. The worst of it was that he should know for sure. But he didn't. So he was going to look it up. He took down a book from the case, began pawing through the leaves.

Behind him, on the instrument panel, a small globe glowed red. Zach didn't notice it, for he was reading. As he read, his lips moved with the words and his head nodded understanding.

"*Lecanora tartarea*," he said. "Sure, that's it! By golly, I—"

He darted eagerly for the panel. This discovery was important enough to warrant rousing the lieutenant from his slumbers. Zach's hand reached for the call button.

But he never reached it. At that instant there came a grinding shock, a crash that shivered hollowly through the *Spica*. In the space of seconds, even as Zach's horrified eyes sought the instrument panel and belatedly discovered the glowing, ruddy dot there, a tension beam had fastened to the mail ship. There were fumbling noises at the port, then the wheezing

of the air-lock!

Scraping footsteps sounded below. Russ Hodges' head came popping up from the lower deck companionway like a startled hare from its warren.

"Zach!" yelled the still sleepy-eyed commander. "The air-lock! Somebody tied up to us!"

Zach was diving for the gun closet. He tugged at its stubborn handle, wrenched it open, reached for the hand ray.

"I wouldn't touch it if I were you, sailor," said a cool, derisive voice. Then the voice hardened, became curt and peremptory. "Stand back, both of you."

"Sorenson!" Russ Hodges yelled. "Balder Sorenson!"

THE bulger-clad invader's lips twitched thinly. He flipped open the face port of his bulger, nodded to two men behind him to maintain guard. Then he tucked his own hand ray in its holster.

"Bless me, I get recognition. One becomes famous, doesn't one?"

Zach Wheatley growled, an animal sound that rumbled deep in his throat.

"One becomes a hunk of cold flesh!" he mimicked the space pirate's ponderous speech. "If one doesn't—"

"Zach!" said Hodges warningly. Then, to Sorenson: "Well?"

"One does well," drawled the invader languidly, "to advise one's subordinates against discourtesy." Then again came that swift, characteristic change of mood, that snapping voice. "The mail, Lieutenant. Where is it?"

Russ Hodges' wrath darkened his face. His lips set grimly, stubbornly.

"Mail? I don't know what you're talking about."

Sorenson's hand fondled the butt of his ray gun.

"One does not like to use the term 'liar,'" he said significantly. "But unless one receives a truthful reply, one has no choice."

Anger, despair, and bafflement created a chaotic fury in Lt. Hodges' mind. He cursed himself for having taken to his bunk while the *Spica* was in the raider's zone. He cursed Zach for having somehow permitted the

enemy's speedster to approach within grappling distance of the mail ship.

But above all was his ire at what now seemed inevitable. He would have to turn over the mail to Sorenson, or both he and Zach might lose their lives and the mail would be forfeit anyhow. He made one final effort.

"I'm afraid you've made a mistake, Sorenson," he said. "This isn't a mail ship. The *Spica* is on special duty."

For a brief instant, Sorenson wavered. Hodges took heart when the bandit pursed his lips.

"Special duty, Lieutenant? One wonders exactly what this special duty might be?"

Russ realized, too late, that he had made a mistake which might prove fatal. In a vain attempt to protect his cargo, he had tipped his hand unwittingly. So far, Sorenson did not realize that the *Spica* was an armed fortress, specially prepared to destroy the pirate ship. His men had not stirred from the central control turret. But if his suspicions were aroused and he investigated the ship, he would discover the mounted rotor-guns and the *Spica's* miniature arsenal. Then it would be just too bad.

He thought swiftly, desperately. There must be a way out of this. And then, amazingly, Zach Wheatley was in motion. As he moved, he was shouting.

"Russ, get it out of your pocket! Swallow it. They'll never know!"

RUSS stood numbed with bewilderment. But Zach made a scrambling dive toward Sorenson. It was a daredevil move, a reckless one. For a second, his life was balanced on the slightest pressure of the pirate's finger. But Sorenson did not shoot. Instead, he stepped aside nimbly and rammed his hand ray deep into Wheatley's side. To his men he purred:

"Watch this fool carefully!" Then he stalked to confront Russ, his eyes gleaming. "One judges there is something valuable in the lieutenant's pocket?" deftly he shoved his free hand into Russ' jacket pocket. He took out the scrap of printed matter

that was a page from the 2113 edition of the Scott catalogue. He stepped back, studying the sheet, perplexed.

"One needs enlightenment, Lieutenant," he admitted gently. "One does not quite understand."

Russ' face was fiery red. Was the whole world mad, or was he—or Zach? First Wheatley had allowed these marauders to gain possession of the *Spica*. Now he was making an insane uproar about a bunch of fake stamps.

"You don't understand?" he roared. "Well, neither do I, Sorenson."

"But one," persisted the invader thoughtfully, "is beginning to understand. This rare postage stamp, the Iris ten-cent issue. One wonders if perhaps—"

Again it was Zach Wheatley's hoarse voice that took up the unfinished question. Almost sobbing, Zach cried out.

"Don't let him get them, Russ! They're worth more than two million bucks! He mustn't find them!"

"Two million dollars?" Balder Sorenson's pale eyes lighted. "One begins to understand your 'special duty,' my dear Lieutenant. One judges you have in your possession a number of these?"

Indignation had swept away all Russ' powers of deception. "Well?" he flared. "And what if I have?"

"Then," persisted Sorenson, "one would suggest that you turn them over. Immediately."

"But—" began Russ bitterly.

"One suggests that you spare us the 'buts.'"

Russ glared from one to the other of his accosters. Unexpectedly his eye met Zach Wheatley's. Zach stood quietly, covered by the ray guns of the two pirates, hands above his head. But there was a pleading look on his face, a look that solidified into a tiny, almost imperceptible nod. Russ muttered, then shrugged.

"Very well. But I warn you, Sorenson, these things aren't like the cargoes you've been picking up."

Sorenson glanced once again at the scrap of catalogue in his hand.

"One knows quite well what they are, Lieutenant," he said. "One was a

stamp-collector oneself, when one was young. And now, the stamps, please?"

And then Russ Hodges got it. He got it thoroughly, completely, for the first time. It took an effort to keep the inward smile from twitching his lips. But he was a pretty good actor. He continued to grumble as he strode to the turret room cabinet. He opened it and withdrew the small strongbox in which he had locked the Iris ten-cent stamps.

He flung open the lid. The sharp, keen bite of ammonia that had been imprisoned in the box with the adhesives cut the air. Russ tossed out the loosely rolled cylinder. "Well," he said grudgingly, "here they are."

SORENSON picked them up, bent over them swiftly, comparing them with the picture in the catalogue. He called one of his aides to his side.

"One is amazed!" he purred delightedly. "See, Todd? More than twenty full sheets of the ten-cent *violet*! A stamp error listed at a thousand dollars each." He chuckled again and slipped the valuable papers into his belt. "One feels this has been a successful raid, Lieutenant. Now one must be on about one's business. Ready, boys?"

Still covering the two SSP men, the invaders backed from the turret. As the door closed behind them, Russ made a dive for the gun closet. But Zach Wheatley was beside him, checking his move. "Wait, Russ! Let 'em get out, the dopes!"

They held their positions breathlessly until the chuffing cough of the air-lock told them that the invaders had gone. Again there came that clanging of metal against metal, another tilting lurch of the *Spica* as the pirate ship loosed its tension beam. Then at last Zach Wheatley made a bee-line for the starboard rotor gun. But this time it was Russ who attempted to stay his companion.

"No, Zach!" he yelled. "No! If they get away with those stamps, the error will be established for all time. Otherwise, it will mean a tremendous loss to the Department."

"Lemme alone!" yelled Zack. "I know what I'm doing, Russ!"

And he wrenched the concealing cover off the rotor gun. Not without reason had Zach Wheatley been called the finest gunner in space. Within seconds he had hairlined the rapidly accelerating pirate ship. He swung the gun to cover its line of trajectory.

His hand sought the lanyard, jerked. The *Spica* absorbed the reaction with a single, lurching wallow. There was no sound in the gun chamber.

But far away, the black dot which was the escaping pirate ship flared into a sudden, blinding flare. Cherry-red it glowed for an instant against the star-pointed ebony of space. Then a fiery needle of scorching gas writhed into nothingness where a moment before had been a ship, an escaped convict, and his marauding crew. Sorenson's day of terror was ended. . . .

AFTERWARD, Lieutenant Russ Hodges spoke soberly to his assistant.

"I guess I owe you an apology, Zach. But don't think it wasn't your fault that they boarded us in the first place. Considering the masterful way you tricked them into ignoring the mail cargo, though, I'll overlook that in my report." He chuckled, but not altogether mirthfully. "For a minute, I thought you'd gone space-batty. Then I caught on. By diverting Sorenson's attention to the stamps, you saved the rest of the stuff."

Zach Wheatley was a good sailor.

"Yeah, that's it, Russ," he said admiringly. "You're smart."

"But—" Hodges' face fell. "But it was too bad we had to blast their ship with the stamps in it. That's going to cost the Department plenty." He shook his head mournfully. "Two-million-bucks' worth of paper. *Blowie!*"

Wheatley grinned. "How much worth, Russ?"

"Two million. More or less."

"Mostly," said Zach, "less! Chief, do you want to see something funny?"

He led the way to the compartment in which the Iris mail had been stored.

He opened the canvas bag, lifted out, at random, the first letter he came to. It bore a ten-cent postage stamp. But as Lt. Hodges looked at that stamp, he gasped.

"Blue!" he cried. "A blue one, same as all the rest on Earth! But I don't understand, Zach. When that mail was stored, we *know* all the envelopes had the violet stamps on them!"

"That's right," said Zach cheerfully. "When they were stored. But they've been away from Iris for a couple of days now. Away from Iris' ammoniated atmosphere. They've been in the *Spica's* air, which is like Earth's."

"I—I don't understand," said Russ.

"Neither did I, at first," admitted Zach. "But I felt like I ought to know. So I looked it up in some of my botany books. It's just a question of dyestuffs."

"Dyestuffs?"

"Yeah. Remember that Plaiice told us he ground up his violet dyes out of lichens that grow on Iris? He said he pulped them with potassium carbonate. Well, it's a good way to make dyes. A swell way. Only the trouble is, then lichens he used was a variety known as *Iecanora tartarea*. They use 'em on Earth for—"

"Yes?" said Russ.

"Litmus paper!" roared Zach gleefully. "That's why them stamps stayed purple on Jupiter and Io, but turned blue on Earth. That's why the stamps Sorenson stole ain't worth a damn! And that's why, when we get back to Earth, we can expose the 'ten cent error' as nothing but a freak."

Russ stared. Then he scratched his head. "Zach, this proves something," he said faintly. "But I don't know just what."

"I do," said Zach Wheatley cheerfully. "It proves that more chemists ought to be stamp collectors. Any one of them would have cleared up this mess in two shakes of a grasshopper's tail. And, say, talking about grasshoppers—"

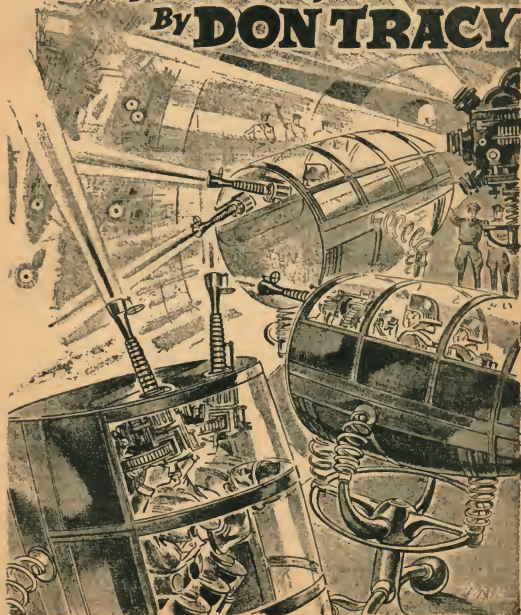
"Yes?" said Lieutenant Hodges.

"One wonders," said Zach, "what the hell one did with one's chewing tobacco!"

The DAY To COME

A Complete Scientifiction Novel

By **DON TRACY**



• COMPLETE SCIENTIFCTION NOVEL SECTION •



Mason Allen

CHAPTER I

After the Invasion

THE purple overtones of dusk were replacing the brassy glare of day, and heat—choking, blood-sapping heat—was giving way to the first chill of night, when the man stirred.

He had been curled in a ball around the base of the mesquite clump, seeking every inch of the scanty shade the brush gave him. As he awakened from the half-dozed, half-coma that had held him in its grip throughout the day, he lay motionless for a full minute, whipping his faculties into action.

The man's first clear thought was: "*I am alive. I am still free!*"

He repeated that thought, over and over, as the realization grew stronger. To the man, it was a precious fact, something to be examined in his own mind, as a woman might fondle a priceless jewel; a starving dog might mouth a meaty bone.

The man opened his eyes, slowly, cautiously. Overhead, the sky was darkening, as the sun sank behind the low-lying mountain range that, at times, seemed so near and yet which, actually, was miles away. The man stared at the sky, his eyes picking out the cloud formations that hung over him. His eyes moved sideward, and he looked at the expanse of sand and alkali dust, the mesquite, sagebrush and cactus that had surrounded him for so many days.

Satisfied that no living thing was within sight, the man risked moving a hand. He flexed a cramped leg and then another. Then he froze into immobility, listening.

There was no sound. The desert was silent in all its depthlessness.

The man sat up, still moving with that

Deep under Death Valley, a grim army of courageous men musters forces of science in a last stand against tyranny—desperately striving to supplant might by right!

animal-like stealth that marked all his actions. He scanned the desert in all directions and saw nothing but wasteland. He listened and heard nothing break the silence. He dared to raise himself to his feet.

"I'm still alive!" he whispered hoarsely to himself. "They haven't got me yet!"

His hand went to the battered canteen that swung at his belt. The container was an ancient piece. Its age could be told by the faded letters: "U.S.A.," still faintly discernible on the mud-stained cloth cover.

The man raised the canteen to his parched, crack-lipped mouth. The container was discouragingly light and the water within the thing was lukewarm. But the few drops which the man permitted himself were as sweet as an angel's kiss.

It was with an effort that the man pulled the mouth of the canteen away from his lips. He screwed the cap tight and looked down at the canteen with a wry smile.

It was funny, he thought. He remembered bawling out a waiter once because the champagne he had served hadn't been iced properly. Champagne!

The man hooked the canteen to his belt, fumbled in a pocket of the shapeless gray suit he wore—a suit curiously figured with black arrows stamped on the shoddy cloth—and hauled forth a few crumbs of biscuit. These he crammed into his mouth, licking the last few crumbs from his grimy fingers, before he wiped his hands on his coat.

Squinting, the man eyed the mountains in the distance. They seemed no closer than they had the day before, and the day before that, and days past that stretched out over a week and more. Days that reached back to hell.

They seemed taunting him, those mountains, moving closer to him at times and then drawing further away as he stumbled toward them; offering him rest and food

• A COMPLETE SCIENTIFICTION NOVEL •

and water, snatching back their offer as he reached hungrily toward them.

The man drew the back of one hand across his forehead and sighed.

"It's probably all a dream," he told himself. "It's probably a fairy tale made up by some of the crackpots back there. I'll die before I find out whether it's true or not, but I had to try. I had to!"

With one last look about him, the man began trudging westward, toward the mountains that now were fading into the darkness of the swift-falling night. He walked slowly, trying to conserve every ounce of that energy which had seemed so boundless at first and which now was fading.

A man did not store up energy, physical strength, back there, whence he had come. *They* made certain of that. The Rulers concentrated on breaking a man's spirit, as they broke his body. One in a hundred lived through the first weeks of *Their* treatment. One in a thousand held firm to his first resolve, to escape that he might strike again at *Them*.

The man's tongue was black and swollen in his mouth. His brain swam in a nauseous sea of utter weariness. His legs screamed with the agony of each step. But the man walked on, propelled by a force that was greater than himself, a spirit that had sent thousands of other men out on this strange journey—the journey that had led most of them to death.

"But some got through," the man croaked aloud. "The grapevine said that Thistleton and Gauraud and Joe King and that Australian fellow got through! I'm as good a man as they. If they could get through, I can."

ONE step. Another step. A hundred steps. A thousand. The tiny compass in the man's hand pointed the way—due west. It was important that he keep his eyes fixed on that compass, holding it to within a fraction of an inch from his eyes as the blackness deepened. Many a man had forgotten to watch that compass and had wandered in circles until heat and thirst—or *They*—got them.

Sing! Talk! Recite poetry or tell aloud the plot of the last stereo-movie you have seen! Anything to stave off madness. Singing wasn't so good. *They* might hear him. Sounds carry a long distance over the desert. Better fall back on the old trick of composing a letter to Mildred, his wife.

"Dear Mildred," he told himself. "I got through and here where I am there are millions of gallons of clear, cold, sparkling water. Cold water. Gallons of cold water. Water to drink and let run down your chin. Water to dive into. All cold. All clear and cold. All—"

Whup! Careful! Better start over.

"Here where I am we are all getting ready for the day when we will rise against *Them* and drive the minions of dictatorship and tyranny forever off the face of the globe. The day is almost here and I have promised myself to be the first into the Peekskill Camp, where you are—or were, when I last heard from you. You know how I miss you and—"

What was that?



The Ruler

The man quickly flung himself headlong to the ground, his canteen clattering as it struck a rock. He tensed, his head turning slowly as his ears strained to pick up again the sound that had dropped him.

There it was! The faint drone of a plane's motor coming closer; a sound as blood-chilling to the man in the desert as the sound of bloodhounds' baying had been to other men, in centuries gone past.

The plane's thrumming grew louder and the man, looking back over his shoulder, cursed as he picked out a pencil of light, pointing down toward the earth from a speck that moved across the sky behind him. *They* were hunting him.

No use to crawl under that mesquite scrub to his left; that would not hide him from *Them*—not with that new Humboldt-detector they had for running down fugitives. They had demonstrated that device at the camp, to impress on all of them how futile it was to attempt escape. The man remembered the demonstration vividly.

It had been a hot summer's day, and he had been working in the pits of Metal Station when work had been stopped and they had been herded outside to the Formation Plaza.

The prisoners had thought that it was to be another address, bellowed by the sonic speakers of the Ruler, but this had been different.

Carefully, and with that insulting tone that the Rulers always used, the Commandant had explained that a demonstration of "scientific interest" was to be given. The Commandant himself, a short, stocky, clip-haired monster who always insisted on administering the tortures personally, had walked down the line of prisoners, his monocle glistering in the sun. At length, he had stopped, before Jan, the Pole, and had tapped Jan with a blunt forefinger.

"You," he said, his lips curling. "I have

heard of you. You are always talking escape. Now you will be permitted to escape, my friend. You will leave here now, unmolested, with food and water. You will be given an hour's start and then the—chase will begin. It should prove interesting."

Jan had blanched, knowing that his death warrant had just been handed him. But he had accepted the rations and the water stoically, and, as silently, had marched to the gates of the camp. At the gate, he had turned and raised his hand in a sort of salute.

"Good-by," he had yelled to the prisoners. "Do not lose heart!"

The cut of a riding whip across Jan's mouth had silenced him then, but there had been something in the Pole's last words that had strengthened all of those who had been left behind.

They made no answer to Jan's farewell salute, but the big man must have known what they had told him silently.

When Jan had gone, the Commandant had returned to face the company. A curious instrument board had been trundled across the Formation Plaza in front of the prisoners. It resembled an antique Twentieth Century radio instrument panel somewhat, being studded with dials and rheostats. None of the men ever had seen anything like it, except, perhaps, in museums.

For an hour, the prisoners had been forced to stand in formation, held at rigid attention. Then the Commandant, glancing at his wrist-watch, had snapped his fingers and had gestured two of his officers to places at the instrument panel.

"Look, vermin," the Commandant had told the prisoners. "Your comrade has escaped. We do not know in what direction he has fled, like the rat he is. But observe, closely."

The prisoners heard the stutter of a plane's atomotor as the craft took off from the field beside the camp. The two officers at the controls of the instrument panel on the Formation Plaza twiddled their dials incessantly.

"**T**HAT plane," the Commandant had explained, "is equipped with a Humboldt-detector, a device which throws a newly discovered ray. I shall not attempt to explain it to you vermin, but I will tell you that when this ray, directed toward the ground, makes contact with the isotope of a certain element in the bloodstream of a human being on the ground—a bloodstream which has been carefully filled with this certain isotope—the ray acts as a direction-finder for the plane, enabling the pilot to make straight for the human being, no matter how well hidden.

"Your bloodstreams, of course, have been thoroughly inoculated with this isotope, through the food that has been given you here at the camp. Your comrade Jan is chock-full of that element. For demonstration purposes, this direction-finder board has been cut in to the plane's panel to show all of you just how long it will take to find Jan."

As the men watched tensely, faces hag-

gard, they saw a red light glow on the panel. The light brightened steadily as the plane, still in sight of the men on the Formation Plaza, circled. Then, when the light was bright red, there came the chattering sound of the plane's machine-guns. The light blinked out.

The Commandant had polished his monocle carefully, a sneer on his face.

"Another attempted escape," he announced, "has been frustrated for the good of the Empire."

A low growl had burst from the throats of the prisoners, a growl that had endured through the cracking whips and the thud of gun-buttresses as the guards had herded them back to their cells. Work had been suspended for the day, all rations had been cut in half for a month and every fifth man in the company had been given twenty lashes.

NOW the man lay, clutching the desert sand with a fervor that would make it seem he hoped it would give way, to hide him from the approaching light. Then, as the plane began circling around him, its direction-finder picking up the scent, the man lurched to his feet and began to run.

Instantly, bright flares dropped from the plane, lighting up the flat countryside with a dazzling flare. The man's figure was thrown in bold relief as he ran, staggering, toward the west—toward the mountains where safety might, or might not lie.

The plane's pilot swung his ship over in a steep bank and dived, the machine-guns spitting fire, the slugs whacking into the ground beside the man. There was a stunning blow on one shoulder, another at his leg and he somersaulted like a shot rabbit, to lie motionless on the sand.

The plane zoomed, turned and dived again, the machine-guns chattering. The man, his brain aflame with the pain of his shoulder, received another bullet in the forearm before the pilot banked and turned for another try at his motionless target.

At that time, the man lost consciousness, so he did not see what happened. He did not see what appeared to be a flat section of the desert floor rear back, revealing a hole from which the slender snout of an anti-aircraft gun thrust itself into the air.

He did not hear the flat crash of the gun, a second, and a third. He did not see the flash of bursting shrapnel split the semi-darkness of the descending night, directly ahead of the speeding plane, nor did he see the ship which had tracked him down crumple in mid-air and drop, like a flaming meteor, to the desert floor.

These things he did not see or hear, but he was faintly conscious of gentle hands under his arms and at his feet, of somebody carrying him across the ground and down a flight of steps that seemed endless. He struggled out of the dizziness that had engulfed him and opened his eyes to find himself in a brightly lighted room, its rustic furniture spotless, seemingly filled with men in white gowns and caps.

A tall man with a Vandyke beard and sympathetic brown eyes was bending over him as he lay on a table. The man in white was pulling on a pair of rubber gloves.

"Who—" muttered the man, feebly. "Did I—am I—"

The bearded man nodded, smiling gently. "Yes, son," he said, quietly. "You got through. You're hurt, but not badly. You'll live—to fight again!"

CHAPTER II

Subterranean Refuge

THERE followed days of pain-ridden semi-consciousness for the man who had escaped death by an eyelash on the floor of the Mojave Desert. When, at last, his brain cleared and he was able to concentrate on other things besides the agony of his wounds, he found himself in what appeared to be a hospital ward room which stretched the length of a city block.

For an awful moment, the man thought he had been retaken by *Them*; that the words of the man in white who had bent over him had been part of a fantastic dream. Then he noticed several things which proved to him immediately that he was not back at the camp, in *Their* clutches.

In the first place, the white-clad nurses who moved about between the rows of beds were women—and no woman ever had been inside the camp where he had been kept. Then, too, the place was windowless, although softly lighted and ventilated by recurrent gusts of clean, fresh air, far different from the foul air of the camp cells.

Chiefly, the atmosphere of the place was as different from that of the camp as day from night. The man felt that immediately. Where all had been hate and despair, here was love, tenderness and, as tangible as a concrete object, an overwhelming hope.

A nurse, passing, caught the man's eye and turned at his bed, smiling down at him. The man attempted an answering smile. God, how difficult it was to smile, after one had gone years without smiling!

"You're feeling better?" the nurse asked.

The man nodded his head. His voice was little more than a whisper when he spoke.

"What happened?" he asked. "How did I get here? The last I remember, a plane—"

The nurse laid a soft hand over his mouth.

"You mustn't talk now," she said. "Later, I'll bring our Section Chief here to talk to you. He can answer all your questions better than I can."

The man tried to speak again, but the effort was too great. Filled with a peace he had not known since the days before *The Invasion*—how long ago had that been?—he relaxed on his pillow, closed his eyes and dropped off into a deep, dreamless sleep.

It must have been many hours later when he awoke again, to find a man seated at his bedside, looking at him. There was another smile, a smile of encouragement, a smile that seemed to tell the man that his struggle to escape was appreciated, his valor honored, and the stranger spoke.

"I'm Steve Bartlett," he said. "Chief of this section. I'm glad to hear you're so much better. You had a narrow squeak. You're Allen, of course."

The wounded man nodded his head.

"Mason Allen," he croaked. "I escaped from the Harrisburg Camp—"

"We know," the other man interrupted. "Our agents reported your escape. We get word of every escape and try to help the poor devils get through. All too few of them make it. You were lucky."

"What happened?" Allen asked.

"That plane caught up with you just a few hundred yards away from our Outpost Forty-Nine," Bartlett explained. "That's our easternmost outpost, just put into commission last month. If that ship had found you half a mile away, you'd have been killed. As it was, the plane's own flares tipped off our gun crew. We haven't got a listening apparatus in that new outpost yet. Otherwise, we'd have known the ship was coming long before he got a chance to pour lead into you. As it was, he fired a couple of bursts before our gun got into action."

"But what—" Allen began, weakly.

Bartlett smiled.

"I'm afraid you'll have to take all this in small doses, old man," he said. "It's pretty amazing, almost unbelievable at first. What did you hear at the camp?"

Allen made a gesture with his hand.

"The usual rumors," he said. "The men heard stories about some last stronghold where decent men had gathered together in some hideaway that *They* hadn't found. It was generally agreed that the hideaway was somewhere west of the Death Valley, probably in the mountains. None of us knew more than that. All we knew was that we had to cross Death Valley in hopes of finding it."

BARTLETT nodded, his face sobering. "This hideaway, as you call it, originally started in the Panamint Mountains, Needle Peak, to be exact," he said. "There was a cave there—an enormous cave of which few people knew. Not as large as the Carlsbad Caverns, of course, but sizeable enough to give refuge to more than a thousand people who fled *Their* scourge. That was right after *The Invasion*."

Allen nodded, waiting.

"Since then," Bartlett continued, "we have built an underground city—more than an underground city, an underground nation. This room is more than three hundred feet below the surface of the desert floor, built by engineers who escaped from *Them*. You'll see just how extensive this place is when you're able to get around, before you go to work."

"Work!" said Allen, his eyes glistening. "God, how I want to get to work again. After the years—"

Bartlett's soothing voice cut in.

"We leave all that behind us here," he said. "It's our job now to look ahead to what's coming, not behind us."

"How many people do you have here?" Allen asked.

"Our last census showed approximately three hundred and fifty thousand people, of which at least two hundred thousand are men of active service age—that is, from seventeen to fifty."

Allen struggled in an attempt to sit up.

right, but Bartlett pressed him back.

"Two hundred thousand!" gasped the wounded man. "Why, with two hundred thousand men, we could—"

"We could kill a lot of *Them*," Bartlett supplied, calmly. "We could capture perhaps a third of this country in a surprise attack. And, in turn, we could be wiped out, when *They* massed their forces, the prisoners *They* still hold would be tortured to death, and everything we have worked for and planned for would be ruined, just for the sake of a short-lived vengeance."

"I'm sorry," Allen muttered, shame-facedly. "It's just that I hate *Them* so."

Steve Bartlett leaned over the bed to grasp Allen's hand.

"Patience," he said, firmly. "That's our greatest need right now. Patience to hold our fire while those we love still are slaves of *Them*. Patience to contain ourselves, knowing that our day is coming, while the horror goes on. Remember that, Allen. One hasty, thoughtless action might mean the difference between life and death or, more important, between freedom and slavery."

The Section Chief arose from the chair beside the bed and glanced at his wrist-watch.

"I've talked too long," he said, "and I've got a lot to do. Later, when you're able, you'll be taken all over this place. You'll meet Kingsley, the boss of the works, and Stucke, who's lab chief. Seems I recall you were some shakes as a chemist before The Invasion, weren't you?"

Allen raised a shaking hand to his eyes.

"I—I was," he faltered. "Now, after what *They* did to me, I don't know what I can do."

"Forget it!" snapped Bartlett, briskly. "Anybody who can make it on foot almost across Death Valley with about a teacup full of water hasn't lost his nerve. You'll be all right, man, when you come around."

CHAPTER III

From the Corners of the Earth

THE "coming around" was slow work and Allen fumed impotently at the failure of his strength to return more rapidly. During his convalescence, he talked with his neighbors in the ward and heard their story. They were amazingly similar, although these men came from widely separated parts of the world.

On one side of Allen was a young Englishman who had somehow beaten his way half way around the world, hunted like an animal, until he had reached The Refuge. On the other was a Canadian of more than sixty who, though he lost a leg doing it, had made his way to the underground hideaway from the Yukon district.

Although neither the Englishman nor the Canadian were suffering from wounds, there were many in the ward who were recovering from the slugs belched by *Their* guns. Raoul, a grizzled French veteran, hobbled to Allen's bedside on crutches one day to recount his story with dramatic gestures.

"The pigs," he snarled, his mustaches

bristling, "caught up with me in the mountains, west of here. It was in what you Americans used to call your Sequoia National Forest. I speak English good for a beginner, do I not?"

"Anyway, *They* surrounded me, crouched behind a boulder with only a rusty old revolver with three rounds in my hand. 'Eh, bien,' I say. 'This is the way for a man to die, not rotting in a cell.' So I hold my fire until I cannot miss. I get the first, a fat lieutenant, between the eyes and then I get a private in the belly. Then *They* got me in the legs with a rifle. But I fire my third shot and I send another one of *Them* to hell."

"But how did you escape?" Allen asked interestedly.

"The side of the hill, *m'sieur*," explained Raoul, "seems to come apart and out of the hole comes a company of men. Armed men. I never have seen so sweet a sight, *m'sieur*. They work fast and they know what to do. I wink once, twice, and when I look again, *They* are *fini*. Of the detail that tracked me down, seventeen have gone to hell and five are prisoners. I am rescued."

"Prisoners," growled Allen. "Why do we bother with prisoners? Why not treat *Them* as *They* treated us?"

The bushy-bearded Frenchman laid a thick forefinger beside his nose and winked.

"Ah," he said. "They are valuable, those prisoners. When you are taken on a tour of the place, you shall see how valuable those prisoners are. Perhaps, if you are fortunate, you might take the place of one of those prisoners."

SO saying, the Frenchman burst into stentorian laughter, nor could all Allen's entreaties make him explain further.

Days moved into weeks and weeks into months before the day came when Allen was pronounced physically fit. Bartlett was the one who told him that he was to be taken on his inspection tour, called "sightseeing trip" by the friends Allen had made in the ward room.

"First," explained Bartlett, "you'll see the big boss, Kingsley. You can imagine how busy he is, but he makes it a point to meet every new man that comes in here. You know of him, of course."

"A little," Allen said. "Army officer, wasn't he?"

"A second lieutenant," Bartlett said, nodding. "That is, a second lieutenant when The Invasion began. He went up in a hurry, once the Staff saw that he was the cleverest man they had. By the time he was in a position really to put his defense plans into force, of course, it was too late. Our supplies were gone by then and everything was over."

Allen followed his Section Chief to the door of the ward room, beyond which he never had gone during all the weeks of his convalescence. His going was marked by cheers from the others in the room.

"Tell the boss," shouted Raoul, "that I am about ready to get to work again."

"Wait for us before we start the Big Push," yelled another.

Outside the hospital room, Mason Allen

found a narrow corridor, traversed by a set of narrow gauge railway tracks. Waiting at the door was a small car, capable of seating ten people. Five or six men already were in the car. Allen was introduced to all of them by Bartlett before the Section Chief took the controls of the car.

"Electric, of course," Bartlett explained. "We have fourteen major power plants down here, all served by underground rivers. There are also about fifty smaller plants and several hundred auxiliary plants to be used in emergencies. Altogether, we have something like four thousand miles of track running around down here."

Allen stared with round eyes as the car whizzed along the narrow corridor, twisting and turning. Bartlett pointed out various spur tracks which turned off the line, heading into other corridors that branched off from the passageway.

"Most of those," he explained, "lead to storehouses. Some go to defense outposts. The furthestmost outpost we have is just south of Reno, Nevada, but there are several under construction that will be beyond that point."

The tracks turned into a wider corridor where four sets of rails gleamed in the soft

"Good," said Bartlett, heartily. "We've had a few dissenters, trouble-makers, but they can be expected in a crowd as big as this."

"What happens to them?" asked one of the others in the speeding car.

Bartlett shrugged.

"They're given unpleasant jobs," he said. "They're well treated but they're not given privileges that others get. They all come around in time."

The car drew up in front of a door, set in the wall of the corridor. Two men stood on a narrow platform on each side of the door, heavy guns strapped to their thighs. They saluted Bartlett and one reached behind him, apparently to press a hidden buzzer.

"Natural precaution," the Section Chief explained. "The success or failure of this whole thing rests pretty well in the hands of the big boss. Of course, he's trained his lieutenants to the point where they could carry on, if anything happened to him, but just the same we're keeping Kingsley pretty well guarded."

"How," asked Allen, "can you prevent them from getting spies in here? They must have tried to get in, haven't they?"

"Lord, yes," said Bartlett, smiling. "We

IN NEXT MONTH'S SCIENTIFCTION NOVEL SECTION

GIFT FROM THE STARS

By EDMOND HAMILTON

A NOVEL OF A VEGAN VISITOR

indirect lighting. Semaphore signals blinked as Bartlett guided the car through a maze of switches and off the main corridor into another narrower passageway.

"That was Broadway," he explained, with a chuckle. "You ought to see that during rush hour, when the shifts are changing. Takes a better man than me to get a car through that tangle without bumping somebody or being bumped."

"But," said Allen, "I haven't seen another car nor another person since I left the hospital ward. It's uncanny. All these miles of passageways and not another living soul besides us!"

BARTLETT glanced at him curiously. "You'll find out," he said, briefly, "that when there's a work period, such as this, everybody works. Everybody! We've got to work hard and fast to be ready when the day comes. Right now, nobody's supposed to be on these streets, so nobody is on them. Later, when the hours come for rest and relaxation, those streets we've passed will be jammed. Call it regimentation, if you like, but every minute of your day will be marked down for you, Allen, and you'll be told to do this and so and you'll do it."

Allen nodded.

"And gladly," he said, simply. The others in the car murmured similar sentiments.

get at least two or three spies a month. We let them in, of course."

"Let them in!" gasped Allen.

"Sure," said Kingsley. "We make sure nobody sees them get in but we let them in. Then, when we prove they're spies, we do certain things and then, in a couple of days, Hans or Karl or Guiseppe or Kato or whatever the spy's name is returns to his headquarters and officially reports that there's no such thing as The Refuge."

He held up a hand to ward off Allen's question as one of the guards threw open the door.

"All that," he said, grinning, "will be explained later. Right now, I want you to come in and meet Kingsley."

CHAPTER IV

"Boss" Kingsley

BARTLETT led the group through the doorway and past a row of guards who lined the corridor on which the door opened. Allen glanced curiously at these men as he passed. Here he picked out a man with Slavic features, here a pure Nordic face, and again a man who appeared to be an Oriental.

This strange society, he learned, held no brief with a man's origin. It was interested only in the man's loyalty to a cause which,

in the past decade, had been a hopeless one—the cause of liberty and freedom of thought and action.

From the four corners of the earth these men, somehow, had found their way to The Refuge, where they had offered their lives to work and fight, when the time came, for ideals which had almost been stamped out of existence. Stamped out of existence after The Invasion by the foes of true democracy—the forces of Fascism and Communism.

Allen experienced a great thrill as he realized all this; when he was struck by the knowledge that the spark that he had nurtured through days and years of untold hardship and suffering was bright in the souls of these men and of the hundreds of thousands of other humans grouped in this subterranean nation.

He recalled a video drama he had seen, long before The Invasion, in which the leading character, standing amid the ruins of his civilization, had promised that the forces of might one day would be smashed by the forces of humanity. Lord, how long ago that had been!

Allen shut his eyes, made a silent vow. He would help kindle that spark of hope with all his soul, even if it meant his destruction. It was civilization versus dictatorship once again, as it had been in the Third Great World War, a decade ago. This time the despots of tyranny must be destroyed for all eternity. For it was the Rulers who stood in the way of a real peace on Earth, made it a land where the golden rule of Science was supplanted by the mailed might of the war lords.

"Here we are," Bartlett announced, as he stopped before another door. The Section Chief rapped briskly and turned the knob in response to a hearty summons from the other side of the door.

The office was severely plain, outfitted with only a small desk, a few chairs and a small filing cabinet. But it was not the monastic plainness of the place that held Allen's attention. It was the man who arose from his chair behind the desk.

The man, Kingsley, was of middle age and of rather slight build. He wore a small, closely clipped mustache and his eyes, under the thick brows, were bright blue. His features were warmed now by a smile of greeting but beneath the pleasant expression Allen could glimpse the firmness, the rock-like singleness of purpose, visible in the lines of the "big boss'" face.

Instinctively, Allen raised his hand in salute, as did the others in his group. The salute had not been ordered; it was a genuine gesture of respect voluntarily given by men who, some day, hoped to move into battle under Kingsley's leadership.

The "big boss," whose formal title was Commander-in-Chief, replied to the salute and gestured toward the chairs.

"Sit down, boys," he said. "I've got exactly seven minutes for a little talk with you. Wish it was more, but we're busy today—and every day."

Kingsley's voice was mild, unhurried. There was none of the brass-hat brusqueness about the man but, somehow, Allen knew that the "big boss" never wasted a

minute, never expended effort in a direction which would not bring tangible results for the cause.

"You boys know where you are," Kingsley said. "You know what we are working for. Later, you'll be taken on an inspection tour to see what we have here and what we hope to build. I want to give you a few words of advice."

He hesitated for a moment and his blue eyes raked the small gathering.

"One thing we demand here," he continued, "is absolute loyalty. Loyalty to our ideals, loyalty to the cause and to our comrades. It must be remembered that this whole nation still is a secret to *Them*, although we have almost four hundred thousand people here, scientific laboratories, power projects, munition plants, aircraft factories, foundries, railroad systems, agricultural centers and a line of fortifications which would make the old Maginot Line, which some of you might remember from your history books, resemble a *papier-mache* toy fort.

"One traitor or one fool might ruin everything, spoil all our plans. That's how slender is the thread on which all our hopes and plans hang. If our existence was discovered now and our stronghold located, we could withstand an attack by *Them* for months, years—perhaps indefinitely. But our objective, the liberation of the thousands of millions of slaves throughout the world, would be knocked in the head.

"Many of you—most of you—have loved ones outside; wives, parents, children whom you hope some day to rescue from the Rulers. Remember those loved ones every time you are tempted to act selfishly, impulsively. Take a few seconds to think and, if there is any doubt in your mind as to the wisdom of what you were about to do, don't do it until you have consulted somebody else.

"We don't aim to strangle individual enterprise down here. We need it and we encourage it—when it works for the common good. What we do guard against is selfishness, thoughtlessness, headstrong acts that might lead to disaster. We have been in existence down here for more than ten years and, so far, we have been lucky enough to guard our secret against the enemy.

"Oh, *They* know there is a hidden stronghold somewhere in the West, but they have not found the exact location, nor have they any idea of the size of our nation. We want them to bask in their false security until the time comes to strike."

KINGSLEY paused again and his face hardened into stern lines.

"In the ten years of our existence," he said, slowly, "we have found eleven traitors—men who were willing to sell us out for money and position that *They* offered. Spies from *Their* army are made prisoner. Traitors from our group—are shot!"

Kingsley's face relaxed again and he glanced at the electric clock on his desk.

"Time's up," he said, cheerily. "Bartlett will show you the rest of the works. Good luck to all of you, and I know every one of

you will work as hard as you can."

He shook hands with each member of the group before Bartlett herded the detail out of the office. Allen left the presence of the "big boss" still more encouraged than when he had entered. Here was a man, he told himself, whom he would like to follow, into the jaws of Death if need be.

Outside the Commander-in-Chief's office, Bartlett once more took over the controls of the electric car.

"First," he said, "we'll visit the identification bureau. I got word that a new wanderer got through this morning and I want you all to see how we treat them."

A few minutes' journey and they drew up in front of a door that opened into a small room of spotless white. In the center of the room, under glaring lights, was a chair and in the chair sat a man whom Allen took to be the "wanderer" who had just got through.

A doctor stood beside the man in the chair while, across the room, a young woman poised a notebook on her knee. She was writing rapidly as the man in the chair talked.

"Truth serum," Bartlett whispered. "It's a development of the stuff they experimented with before The Invasion. The old serum was faulty, at best, but that English scientist, Lewin, has developed it in our laboratories down here until it's infallible. All of you chaps underwent it. You were unconscious, Allen, but you talked plenty for all that. Listen!"

"When did you escape?" the doctor was asking.

"Escape?" returned the man in the chair. His eyes were blank as he stared straight ahead. He seemed hypnotized.

"What camp were you in? What was your number? Who was your Commandant?" urged the doctor.

"Fort Laramie," replied the man in the chair. "C Company, 397th Tank Squadron."

The doctor straightened then and flashed a keen glance at Bartlett. The Section Chief nodded. Allen realized, with a thrill of dismay, that the man in the chair was no true "wanderer." He was a spy who, somehow, had found his way to The Refuge.

"What were your orders" asked the doctor, his tone brusque.

"To leave the plane by parachute in the desert," chanted the man in the chair. "To bury my parachute and to make my way on foot toward the mountains beyond the desert in an effort to make contact with the vermin. To locate the position of the dogs' hideout and to return to my base as soon as possible to report."

"You found the hideout?" asked the doctor.

The spy nodded mechanically.

"I had traveled afoot for two days when I suddenly was confronted by a detachment of infantry, somewhere in the foothills of the Panamint Range," he said. "I was questioned and answered questions as ordered, giving my name as Patrick Butler and telling the vermin that I had escaped from the St. Louis camp. They believed me and led me to an opening in the hillside.

"There I was blindfolded and led down a long flight of steps. After that, it seemed

I traveled in some sort of a car. I was taken to a room, where the blindfold was removed and a man, apparently a doctor, gave me an injection to strengthen me after my ordeal in the desert. The vermin were completely fooled by my disguise."

The doctor beside the spy straightened up and turned to walk over to Bartlett.

"Obviously a spy," he said, calmly. "We'll give him the gas test to make certain."

A PAIR of soldiers—all of the soldiers Allen had seen in this underground nation were dressed in uniforms of olive drab with loose tunics and baggy breeches—escorted the spy to a small glass-doored chamber that led off the main room. There, the spy was seated on a stool and the soldiers withdrew. The door to the ante-chamber was locked and the doctor moved toward a valve handle set in the wall near the door. He turned the handle, there was a hissing noise, and the man on the stool was seen to go rigid and topple from the stool.

"He's not dead," Bartlett explained, in response to Allen's muffled exclamation. "That's a paralysis gas. Works on the brain—arrests all motor nerves. It's the last test we use on spies."

"But what does that prove?" asked Allen.

"You remember that your Commandant at the camp, according to your truth serum statements, explained that the new fugitive-hunting device *They* had perfected operated on a certain isotope in the bloodstream of every prisoner, an isotope introduced to every prisoner through their food?"

Allen nodded.

"Naturally," Bartlett continued, "that certain isotope was introduced *only* into prisoners, otherwise the fugitive-hunting device would be confusing, tracing members of *Their* own army."

"I can see that," Allen agreed.

"We," continued the Section Chief, "know what that isotope is. A radioactive substance found in heavy water. So we have perfected our paralysis gas to a point where it is inactive against anyone whose bloodstream contains that element. This man had none of that element in his blood. The gas worked, *ergo*, he was no prisoner."

He paused and smiled.

"You see," he said, "we plan to use that gas some day, when the time comes, against the Rulers. With its present development, the gas can be used against *Them* without affecting our own people. I think you'll agree that it ought to be quite effective that way."

MASON ALLEN nodded slowly. His mind was filled with the vision of his people's planes sweeping over concentration camps, dropping bombs of paralysis gas which would render inactive every one of *Them* it reached, while the prisoners themselves were unaffected by the gas, able to take over the arsenals, the fortifications of the camp while their captors slept.

"Come along," Bartlett ordered. "We've got a lot to see."

The Section Chief did not exaggerate when he said there was much to see. Allen's wonderment grew as he went through the huge

underground munitions plants, the factories, the foundries and the power plants that had been set up in this startling underground labyrinth.

"We have plenty of water in our underground rivers to supply power," Bartlett explained.

"We have plenty of ore and we have oil. We have some of the most capable scientists the world has ever known down here—men who have made discoveries within the past ten years which have revolutionized manufacturing methods, agriculture theories, the very precepts of civilization."

He gestured toward a corridor they were passing; a corridor that ran toward a high room from which came the acrid odor of oil fumes.

"That's one of our most important centers, in a way," he said. "That's Michaelson's laboratories."

"Henry Michaelson, the British scientist?" Allen asked. "I thought he was dead."

"They think so, too," smiled Bartlett, "but he's very much alive. When we first established ourselves here, our chief worry was our oil supply. We tapped some new reservoirs but we knew they would not be enough for our purposes. That's where Michaelson came in.

"He discovered and developed a process by which oil could be refined to a point where one quart of a new fuel called Freedine would equal one hundred gallons of gasoline as we knew it before The Invasion. He is still working on his process and he hopes to boost Freedine's power to equal five hundred gallons of gasoline, or maybe a thousand. And we have one million gallons of Freedine stored away."

In another part of the manufacturing district, Bartlett pointed to row on row of sharp pointed artillery shells.

"They're cased in plastics," he said. "Steel and iron are too precious to us to be used in shells and, besides, the plastic casings have been proven to be a thousand percent more efficient. The explosive is a new material called Vengite, approximately fifty percent more powerful than any explosive previously known, and manufacturable at great speed. And, too, Vengite is as harmless as soap up to the very second the gun's firing pin drives home."

"I was in artillery," Allen said, eagerly, "during The Invasion. The old 313th. Could I examine the shells?"

"Help yourself," Bartlett invited.

Allen examined the shell casings and saw that they were of a caliber unknown to him, something between a .77 millimeter and a .75. These shells, he knew, would be useless to *Them*, in the event they fell into the hands of the enemy. They had gathered all the artillery of the armies *They* had conquered but none of the thousands of guns *They* used could handle these shells. He was about to turn to comment on this fact to Bartlett when there came the crash of a gong, resounding through the ammunition storehouse.

Bong, bong, bong! Bong, bong, bong! "Battle stations!" cried Bartlett. "You men haven't been assigned yet, so stick close to me."

CHAPTER V

Air Raid!

TURNING, the Section Chief raced for the door of the storehouse, followed by Allen and the others. The group jumped into their waiting car and in a trice were whizzing along the corridor, taking turns at a dizzy speed, clacking over switches in their headlong rush. As they sped along, Allen could hear the gong booming out its warning insistently.

When they reached the main corridor which Bartlett previously had named "Broadway," they found the passageway crowded with cars similar to the one they were in. The traffic moved at headlong pace, but without confusion. Each man at the controls of his car seemed equipped with a sixth sense that aided him in throwing switches, making turns and applying brakes at the split-second before what seemed an inevitable collision.

Bartlett's deprecation of his own driving ability, Allen decided, was due to modesty. Certainly, the Section Chief handled the car skillfully enough as they flashed through the corridors now.

Despite the speed, Allen had an opportunity to watch the faces of the other men whom they passed. Each man was tense, but not once did Allen see anything even faintly resembling fear on the features of the soldiers of The Refuge. Instead, there appeared to be a sort of eagerness, an unspoken hope that the day had arrived when the men could come out of hiding and meet *Them*, the beasts they had so much reason to hate.

Bartlett's car lurched off the main line and roared down a narrow corridor, its motor whining shrilly. There was a brake-squealing stop as the car reached the end of the line and swerved off on a spur where a dozen other cars already were sitting, emptied of their occupants.

"This way," panted Bartlett. "It might be a tune-up practice, but I don't think so. Keep quite and follow me."

Half-running the Section Chief quickly made for a heavy steel door, sunk in the blind end of the corridor. The door swung open at his touch and Allen and the others stepped into a wide, low-ceilinged room.

The place was dominated by a gun, its breech open and its barrel resting on its carriage, pointing straight ahead at the further rock wall of the chamber. Three men served the gun, two sitting on the seats each side of the breech, their hands on the levers which controlled the pneumatic raising device, the third standing back of the breech, a slender shell in his hands.

Another man, with earphones clamped to his head, stood at the right of the gun, chanting in a flat monotone. A fourth soldier, obviously an officer, manned a periscope similar to those that had been used in submarines, before The Invasion. To the left of the gun stood two more men, shells in their hands, the last man standing beside a conveyor belt loaded with more shells.

"Five thousand," chanted the man with the earphones. "Six squadrons. Range one-o-seven-seventeen. Six squadrons. Three

bombing. Three attack. Three thousand. Circling. Range one-o-four-five. Circling. Outpost Nineteen sighting."

The officer at the periscope spoke sharply. "Sighted."

The man with the earphones spoke into the mouthpiece on his chest. His voice was unhurried, carefully enunciated.

"Outpost Seventeen sighted," he said.

"Range one-o-three-six," snapped the officer at the periscope. The men at the gun breech twirled their wheels.

"On sight!" they called.

"On sight!" droned the man with the earphones. "Outpost Seventeen on sight." Then a pause. "Hold sight. Hold fire."

"They're dusting!" said the officer at the periscope.

"Dusting," chanted the man into the mouthpiece.

BARTLETT put his mouth close to Allen's ear.

"They've been dropping clouds of some light powder," he explained, "in the hopes that our ventilator fans will suck down some of the vapor and give our position away. You'll see the ventilator fans cut out in a second."

He hardly had spoken the words before the hum of the ventilator fans ceased abruptly and Allen could feel the air currents slacken.

"Off range," snapped the man at the periscope. The men at the gun breech relaxed, as the man relayed the information to headquarters.

"They've passed over," the officer said, turning. He saw Bartlett and saluted. "They didn't spot us that time."

He gestured toward the periscope.

"Have a look, sir?" he asked. "You can still see them, circling toward the north."

Bartlett propelled Allen toward the eyepiece.

"Have a squint," he said. "You'll see plenty of them around before we get out of here."

Allen bent to the periscope and looked into the glass. Barely visible were specks in the sky which showed the position of the searching planes, the ships *They* had sent up in the hopes of locating the mysterious whereabouts of The Refuge.

The "eye" of the periscope obviously was concealed in a clump of mesquite or catus. Allen saw the end of a branch waving in front of the glass. Hanging low to the ground in an almost motionless cloud was a white vapor, the "dust" which *They* had hoped would give away the secret of the hidden nation.

One by one, the men in Allen's group took their turns at the periscope, until the bombers were out of sight. Then followed a waiting period of more than half an hour before two bells sounded in the gun-room and the men left their posts at the gun breech.

"It would have been easy," Bartlett explained, as they left the turret, "to have blasted all those planes out of the sky. Our new sighting apparatus make direct hits almost mechanical. Our new shells are made to split into three separate bursts which automatically 'bracket' the plane. Thus far,



The carnage of the battle was terrific

we have had to shoot down only about sixty-five of *Their* ships. Each time it was a single scout plane and there were no witnesses, and in each case the pilot didn't have time to radio back that he was attacked. Every one simply dropped out of sight.

"They know those planes disappeared in this general vicinity, but the West is a wide country and we left not one tell-tale piece of evidence to show where the plane went down. They've sent over decoy planes, hoping to lure us into action, but we haven't fallen for that—yet."

"Have we any ships of our own?" asked one of the men in Allen's group.

Bartlett smiled and shrugged.

"A few," he said. "The last count was twenty-one thousand, I believe."

"But—" burst out the man who had asked the question.

Bartlett raised a hand to cut off the other.

"Remember what Kingsley said," he cautioned. "I requires patience to wait until the right time comes to strike. All of us hope that time is not too far off."

CHAPTER VI

Science Marches On

WEEKS passed, while Allen fitted himself into the busy daily life of the underground nation. A chemist, his working hours were assigned to the extensive laboratories where, under the direction of men whose names, before *The Invasion*, had been awe-inspiring to all chemistry, Allen worked over test-tubes and retorts, seeking new discoveries to be used in destruction and, more importantly, the rebirth of civilization.

For all the laboratories' energies were not pointed toward raising the efficiency of the hidden army. Indeed, less than half the experiments carried out by Allen and his corps of fellow-workers concerned munitions matters. Great attention was given agricultural questions, including the perfection of methods of synthetic growing, for the underground nation had no expansive fields on which to raise its wheat and corn, its potatoes and its fruit.

Instead, there were compact laboratory-gardens, where luscious vegetables and fruit were raised in glass containers, under a secret ray treatment that accelerated growth. Tomatoes, for example, never weighed less than ten pounds apiece. Potatoes were of twenty-five pound weights or over. Chaffless wheat grew heads four feet in length and twenty-four inches in circumference. Grapes the size of the cantaloupe of the old days and cantaloupes of one hundred pounds were common. Hydroponics, too, enabled the men to raise plants in an underground lake in one of the caverns.

The scientists of *The Refuge* had worked miracles with its meats. *The Refuge* had built its herds from stock that had been "rustled" during the early days. Expert breeding, carried out by leaders in the field of animal husbandry, had produced giant, short-legged beeves which yielded not an ounce of useless scrap, and milch cows that gave yields of milk that would have been fantastic in other days.

THE lack of sunlight was no handicap to those who lived in *The Refuge*. Each day, for a certain number of hours, ray lamps glowed on the ceilings of the massive rooms and the passageways; lamps which were a development of the makeshift "sunlamps" of olden days. They shed an invisible light that permeated everywhere.

Every member of the underground colony was a healthy specimen. Common diseases of the past were unknown. The common cold bacillus had been isolated and wiped out. Cancer long ago had been exiled to the oblivion shared by the bubonic plague and smallpox.

Infantile paralysis, pneumonia, heart disease—all had been conquered by these men who, escaped from death at *Their* hands, carried on that they might bring life to others still "outside."

Allen marveled at the magnificent experimental laboratories sheltered in the subterranean depths. In one vast, metal-walled room, a dozen young men labored indefatigably from behind lead-shielded helmets, subjecting a sample of Uranium ore to a cyclotronic bombardment.

Allen's eyes opened wide at the giant atom-smashing cyclotron that Kingsley's physicists had constructed underground, with crude metal wrested from the unyielding rocks.

Bartlett pointed to the huge apparatus, nodded significantly at Allen.

"Atomic energy. These boys will have the answer soon . . . maybe in a year."

Bartlett led the way to another underground chamber. He pressed a button, and a door slid noiselessly open.

"Here's something no one would have dreamed possible," Bartlett said. "What do you see in the center of the floor?"

"A telescope!" Allen exclaimed. "An electronic telescope! I've seen them before. But here—underground. It's impossible!"

Bartlett smiled broadly. "No—it's real. This is only one of three of our underground observatories. The eye of this telescope probes upward, on the wings of X-ray vision, millions of miles into outer space. A new tele-video process developed by Samuels, the astronomer, makes observation excellent. Not bad, eh?"

A deep sense of awe pervaded Allen's being as Bartlett introduced him further to the wonderland of this strange, fascinating underworld. In one chamber, men were occupied developing a new super short-wave carrier beam, one that could pierce the Heaviside layer, impenetrable for all previous time. In still another room engineers were experimenting with sea-water, striving to tap its hidden, diluted mineral wealth on a successful economic basis.

In yet another laboratory Allen met "the Rain-makers," men whose job it was to harness the elements and control the weather through the medium of directed electronic barrages.

Soon after his impressive inspection trip with Bartlett—the trip that had ended with the air raid alarm—Allen visited the "residential" section of the underground nation. There he saw row on row of modern homes, equipped with every convenience known be-

fore The Invasion, plus others which had been invented and developed since The Refuge was founded.

Allen saw healthy children in excellent schools. He saw family life which had been threatened with extinction by *Them*, revived in all its simple glory. He saw the world as it must have been intended, without greed, without envy or fear, without any strife.

A common cause had bound these people in ties so strong that anything but understanding love, one for the other, seemed treasonable.

"This," Allen told himself, "must have been what the old philosophers meant when they told of their dreams of a communal world. Socialism proved a sad failure, communism was as bad, but the men who sincerely believed in those things must have wanted something like this."

KINGSLEY had overlooked nothing in his building of The Refuge. As much importance was placed on recreation, and on home life, as on defense preparations and the building of the army. Each man, scientist or ditch-digger, was required to spend so much time in recreational exercise. Baseball—Allen almost had forgotten there was such a game—football, boxing, and swimming, were the men's favorite sports. For the women, there were less arduous physical sports and innumerable social events.

"The big boss," explained Bartlett, "says that we've got to live normal lives down here, lest we grow bitter with our own hate and lose our perspective."

Military training, of course, was mandatory. Most of the men in The Refuge had served in one army or another during the Third Great World War, but youngsters growing into maturity had to be versed in military science.

Adults, as well, required constant training to keep them in step with the advances constantly being made in Kingsley's military machine.

Allen spent four hours each day in the laboratory and four hours with his military unit, Company J of the Sixth Artillery. He learned the use of new sighting devices and marveled at the improvements that had been made in accuracy since he had commanded his battery in the last, hopeless Battle of Milwaukee.

Target practice necessarily was limited to theory but so finely had the scientists of the armaments division perfected their guns and shells that there was not a scrap of a chance that a target brought into range by instruments could be missed.

"One gun," Allen's supervisor told him, "is ten times as effective as ten of *Their* guns. That's something to remember when *They* boast of their huge quantities of effective artillery."

THE training of fledgling pilots for the underground army's airforce was as theoretical as the army's artillery target practice, but here again modern science aided in giving beginners training identical with that gained from actual flight. Allen

visited the training quarters soon after his arrival in The Refuge and what he saw was startling, even though he had become accustomed to surprises in this strange country.

Embryo pilots, once they had been thoroughly schooled in ground work, manned planes identical in construction to the super-fighters which rested in their underground hangars, covering acres of ground. This training plane was set in a room through which controlled drafts rushed with a speed comparable with the velocity of wind passing a flying plane.

Updrafts, air pockets—all the vagaries of the skylanes—could be controlled by instructors who managed the air currents that swept the plane. Fledglings handled their controls with as great a fear of a stall as any novice of the old days had, although his plane never was over six feet from the floor of the training room!

Later, after the students were letter perfect in handling the ship under normal flying conditions, they entered the advanced school, where they learned military flying. As the new pilot sat at the controls of the training plane, three-dimensional motion pictures, flashed on a screen in front of him, showed the countryside as it would unroll beneath a flying plane.

When the student banked his ship, a synchronized shift of the movie changed the landscape under his view. As he circled, the movie changed its view. Then, as the student maneuvered, a flight of combat planes dived at him out of nowhere on the movie screen. The fledgling used his guns, firing with an "electric eye" instead of spitting lead.

Each hit, in a vital spot, disabled the attack plane. However, if the student did not handle his plane cleverly enough, he was "shot down" by one of the attackers.

Allen marveled at the fact that hundreds of the lads, grown to maturity in The Refuge had not flown a plane and yet, through expert training, were able to match guns with the best aces which the Rulers possessed. This, plus the fact that the planes designed and built in The Refuge's underground shops were speedier, easier to handle and stronger than any plane ever constructed, gave Kingsley's air force an advantage, small though it was, compared with *Their* air armadas.

Allen's rise in the hidden army was as rapid as his advancement in the laboratories. He attacked each new problem with a calm purpose which was the keynote of the country under the floor of Death Valley. It was not that he hated *Them* less; it was not that he was less eager to go out to meet *Them*, perchance to rescue his wife, Mildred, from *Their* clutches.

It was only that he realized the value of patience, the imperative need for waiting until the moment would come when Kingsley could send his army out with a fair chance of victory.

Premature or misdirected attack would spell disaster and on the success of Kingsley and his men depended the fate of everything Man held dear and sacred—peace and liberty.

CHAPTER VII

Doubling for Death

ABOUT six months had passed since the day that Allen had been brought into The Refuge when, while he was directing his gun crew in target practice—he was a lieutenant by then—the observer taking range directions from the central range-finding post relayed a message to him.

"The Commander-in-Chief's compliments, sir," the observer said, "and you are to report at his office at once."

Allen hurried to Kingsley's office, to find Bartlett with the "big boss." Both men seemed tense, their eyes made bright by suppressed excitement. Allen saluted as he entered the office and then took the chair pointed out by Kingsley.

"Allen," said the commander, "we've got a job for you to do—a mighty big job. In fact, it's the biggest, most dangerous job I've ever assigned to one of my men. I'd like to be able to do this myself but you, of all the thousands of people in this place, are the only one qualified to do it."

A thrill shot through Allen as he listened to his Chief's words. There was no mistaking the gravity of the task that the Commander had chosen for him. Now, after months of semi-inaction, was coming a chance for Allen to prove his worth, to strike a blow against *Them*!

"I'm ready, sir," he said. "What is it I am to do?"

Without answering Allen directly, the Commander-in-Chief pressed a desk buzzer and looked up at the door as a soldier entered.

"Bring in the prisoner," he ordered, curtly.

A moment later, the soldier reappeared, bringing with him a man who wore the uniform of a prisoner of *Their* concentration camps. The man looked straight before him, but the blankness of his eyes told Allen that the man was under the influence of the truth serum. At the Commander-in-Chief's direction, the dazed man took a chair near Allen.

"Meet Gustav Brack," said the Commander-in-Chief. "A member of *Their* intelligence. Quite a valued member, from what he spilled under the influence of the serum. Gustav paid us a visit this morning, wandered into one of our outposts and gave a story about escaping from the Helena, Montana, camp. Under the serum, he gave the right story—the usual business about dropping in the desert by parachute and wandering around, hoping to be picked up."

Allen was staring at the prisoner. As he looked at the other man's face, he felt the hair at the nape of his neck rise. It couldn't be—it was impossible—but—

"I see you notice it, too," said the Commander-in-Chief, smiling. "Luckily, Bartlett was in the interrogation room when this fellow was brought in. He spotted it right away."

"It's uncanny," burst out Bartlett. "The first time I saw this fellow I thought I was dreaming. How in the world, I asked myself, could Allen have got out and then have been brought back in again. Then, on closer

examination, I saw the difference between the two men. There is a difference, but it's a damn slight one."

ALLEN stared at Brack, wonderingly. The man, a member of *Their* hated army, a spy for the beasts who ruled the world, might have been his twin. The doped man's face had identical contours, the eye coloring was identical, perhaps the other man's mouth was a trifle wider than Allen's but the difference was infinitesimal.

"You see?" asked Kingsley. "Except that our friend Brack has a scar on his left wrist, you two are alike as two peas in a pod. That scar can be put on you in a jiffy, and the other slight differences can be fixed up too. We've got some men who are wizards at makeup and, really, you won't need much of that."

Allen wrenched his eyes from Brack's face and looked at his Commander-in-Chief.

"What is the plan, sir?" he asked.

Kingsley settled back in his chair and gestured to the guard to take Brack out of the office. When the spy had been removed, the Commander-in-Chief leaned forward, talking earnestly.

"Here's the idea," he said. "From time to time we've sent our own men out of here, disguised as the spies who found their way in. These men, some of them, have worked their way up to key positions with *Them*. There, they are able to do us a lot of good. Our idea is that you are to go out of here, immediately, as Brack. We've got plenty of dope on this fellow—stuff he spilled under the truth serum. We can supply you with enough to get along on and you're quick-witted enough to carry on from where we leave off. At least, I hope you are."

Allen nodded.

"You're to leave here," Kingsley continued, "within an hour, once you've digested the stuff on Brack that we can supply you. Then we're going to break one of our cardinal rules. We're going to broadcast on a radio frequency that *They* can pick up, seemingly sending out an alarm that Brack, believed to be a spy, has escaped. Our own men won't know that this is anything but a bona fide alarm, so your life will be in danger from your own friends the moment the alarm is given."

MASON ALLEN felt a chill course through him. Any escape avenue, he knew, would be covered by scores of hidden machine-gun nests—machine guns equipped with silencers that hushed the chatter of their death-dealing cartridges. He had little hope of evading all of them, each one manned by a group which would risk the fires of hell itself to prevent a spy from carrying back word of *The Refuge's* whereabouts.

Kingsley must have seen an expression cross Allen's face for his mouth grew grim.

"A tough job, eh?" he said. "Don't think I don't know it, Allen, but it's got to be this way. It's got to look like an up-and-up escape to our men, as well as to *Them*. There can't be the slightest chance of a leak anywhere."

The Commander-in-Chief leaned still further over the desk.

"I tell you, man, that this is the break!" he grated, pounding his fist on the table to emphasize his remarks. "This is what we've been waiting for. Brack is one of the biggest men in *Their* intelligence. He's got the ear of the Ruler himself. That shows they're getting scared, restless. They've lost too many planes and too many men to let things slide longer. They sent out Brack and if he doesn't come back, they'll sweep an army over this country from the Arctic Circle to the Panama Canal—or what's left of it—uprooting every bush, turning over every rock, forcing us out into the open. They're ready to move, Allen, and we're not ready to meet them in a stand-up fight."

"What do you plan, sir?" asked Allen again.

"This," said the big boss. "You return to *Their* headquarters and report you have found our hideaway."

"What!" ejaculated Allen.

The Commander-in-Chief nodded.

"Exactly," he said. "Furthermore, you'll be supplied with maps of the place. You'll turn these over to *Their* staff. You'll advise an immediate attack on our position."

Allen stared, dumbfounded. Kingsley smiled at the other man's amazement.

"It's an old military dodge, Allen," he said. "The enemy is advancing, come hell or high water, so our only hope is to make them advance, if possible, in the way we want them to, in a way best suited to our defense."

"But—" Allen began.

"If *They* attack in full force," Kingsley interrupted, "*They'll* force us to fight a defensive battle, keep us holed up here for God knows how long, if not forever, and then Heaven help the others still on the outside. We've got to have them attack with a large force, but a force that can be maneuvered into a trap and annihilated with one stunning blow."

"Then, while *They* are still on their heels from that shock, we've got to hit—fast and hard—everywhere through the country with our planes and our paralysis gas. We've got to seize every major point in the country, from coast to coast, and hold it against any expeditions that might be flown here from the other continent. We've got to recapture our navies—that's one important thing we lack now—and try to fight them at sea."

"We've got to recapture all of North America with what amounts to a handful of men, rearm the slaves we rescue and form them into some kind of a fighting force to repel the hell that's bound to come from the other side of the water, and come in both directions."

KINGSLEY stabbed a lean forefinger at Allen.

"And the most important thing of all this," he said, "is that first fight. *They've* got to be led into a trap and you're the one who can do that!"

Allen got to his feet, his hand coming up in a salute.

"It's an honor, sir," he said, simply. "Thank you for giving me the chance at it."

The Commander-in-Chief left his seat behind his desk and came around to shake hands with Allen.

"Lieutenant," he said, gravely, "I guess I don't have to tell you that your chances of surviving this are about one in a million. If you're discovered by *Them* you know what to expect. We can count on you to keep our secret, no matter what *They* do to you."

"You can count on me," Allen said, fervently.

"Then, too," Kingsley added, "you'll probably have to lead the attack on our supposed positions; lead *Them* into the trap or, at least, be up near the front of their attacking force. We won't be able to pick and choose our targets."

"I understand, sir," said Allen. "That's a small price I can pay if it means success to you and all the others."

"Good man," said Kingsley, briefly. "I wish you luck. This is our last stand—the last stand of democracy's survivors. Here are the fake plans of our hideout. Here is the attack proposal you've got to put over to *Them*. Study them well and destroy them. Bartlett will take you to the makeup lab and you'll change clothes with Brack there. Be off within an hour."

"I'll give the escape alarm a half hour after you get outside. Bartlett will show you a secret exit you can use to get out. We'll do everything we can to aid your escape—give a wrong direction in the warning and all that—but you'll be on your own from the minute you step outside. Again, good luck, and God bless you, Allen. . . ."

It was less than an hour later when Allen crawled through a tunnel barely wide enough for him to squeeze through, shoved aside a rock and found himself in the open for the first time in nearly a year. It was a curious sensation, to be on the surface of the earth, after all those weeks spent underground.

His first thought was that the air seemed flat and heavy, after the pure, washed air of the hidden nation. Insects, of which there were none below the surface, startled him when he first encountered them. The sound of his footsteps seemed dull after the hollow ringing of sounds in the labyrinth below him.

It was almost night and Allen found his position from the faint glow of the departed sun in the west. Then he set off, at a furtive dog trot, scrambling from bush to bush to hide himself from the eyes of any lookouts who might be in the vicinity.

Kingsley could be depended upon to find some means of diverting the attention of the main lookout post—hidden somewhere in the mountains—for the few minutes it would take him to get into the desert. Then would come the alarm and, from there on, every clump of mesquite might hide the periscope of a hidden machine-gun nest.

As he scurried eastward into the desert, Allen's head was a jumble of facts and figures. He had memorized Brack's record, as far as possible, and he also had committed to memory the attack plan for *Them* which Kingsley had given him.

There was so much to remember—and so much depended upon his remembering everything. For a second, Allen was swamped with a wave of despair. He never

could do it. He would make a slip that would unmask him before *Them*. He would make an error in leading *Them* into battle, an error that would ruin Kingsley's plan. He couldn't do it!

Then he remembered Mildred, starving somewhere in a concentration camp. He remembered Jan, the big Pole who had gone out to certain death with the cry:

"Do not lose heart!"

He steadied himself and quickened his trot toward the east. He would not fail. He could not!

CHAPTER VIII

Inside Their Stronghold

ALLEN had walked less than a mile when he had his first narrow escape.

He was traveling rapidly, albeit in a half crouch, dodging from bush to bush and praying that the swiftly descending night might hide him from the keen eyes of the farflung outposts when, as he paused to get his bearings, he heard the *phwitt, phwitt, phwitt* of machine-gun bullets spearing the air, inches from his body.

Perhaps the failing light had him a more difficult target than he had imagined himself, or maybe an over-anxious gunner, made tense by the radio's announcement that a spy had escaped, had pulled his triggers too soon. Whatever the reason, that first burst missed Allen completely. Because the hidden machine-gun was silenced and its flame carefully blanketed, Allen had no chance to seek out the whereabouts of the nest. All he could do was run, blindly and trusting to luck not to run into the very muzzle of the emplacement that was firing on him, or stumble into another machine-gun nest.

The emplacements, he knew, were scattered to provide *enfilade* fire. If the gun that was firing on him was one of the "outer rim," that is, one of the furthestmost outposts, he had a chance to escape by streaking eastward, out of sight and range of the gun.

If, however, he still was in the "inner circle," surrounded by machine-gun nests, he was doomed. Kingsley, he knew, had directed Bartlett to show him a secret exit which was somewhere near the "outer rim" but, with the constantly expanding defenses, it might well be that other machine-gun emplacements had been set up further east since the secret tunnel had been built.

These thoughts raced through Allen's brain as, head down, he scurried to the east, bullets singing like angry wasps about him. Unless Kingsley had ordered otherwise, it might be that a patrol would be sent out after him—a patrol that could have no other orders except to shoot on sight and shoot to kill.

Although Allen did not know it, Kingsley had ordered against search patrols being sent out. The Commander-in-Chief had explained his order by saying that enemy details were believed to be in the neighborhood and warned his men that to leave their hiding places might give *Them* more information than the escaped "spy" could ever hope to provide.

ALLEN'S breath was whistling in his throat and his lungs were flaming when, at length, he cast himself to the ground and waited for sounds of pursuit. For perhaps five minutes he lay there, motionless, his ears keyed to the slightest rustle of a footstep, the faintest sound which might tell him that a patrol was about.

Satisfied, at last, that the pursuit, if there had been any, was outdistanced, Allen painfully climbed to his feet and began the weary journey toward the east, the journey which, reversed, once had brought him to a land of hope and which now seemed probable to send him to his death.

All night long he walked, with only an occasional pause to catch his breath. His only equipment was a canister of water—a canister that had been taken from the spy, Brack—and the pangs of hunger assailed Allen long before dawn brightened the eastern sky.

With the dawn came the sun and burning, blasting heat. Because he had no way of knowing how long he must travel before he would be picked up by *Them*, Allen conserved his water as rigidly as he had on that westward trip, months before, when every drop of moisture had been a thing precious beyond all the world's gold.

On and on he stumbled, across that sandy waste which God seemed to have forgotten when He made the world. No living thing inhabited this hell of dust and sand. Even snakes and Gila monsters found the place too harsh for them.

It was afternoon when Allen sighted the planes. There were three of them, in V-formation, droning out of the east, probably despatched from *Their* airport at Albuquerque.

Frantically, Allen sought to remember the instructions that had been droned by the real Brack while the spy had been under the influence of the truth serum. What was it that was to be done when the pick-up planes appeared?

His brain, made flaccid by heat, groped desperately for the instructions as the planes came nearer. For one awful moment, Allen thought he had forgotten everything—Brack's instructions, Kingsley's plan of battle—everything! Then, like a miracle, it all came back to him. He heaved a sigh of relief and set to work.

Tearing his shabby shirt from his back, Allen waved the tattered garment in a wide circle above his head. Then he gestured with the cloth, twice to the right, three times to the left and once again to the right.

By that time the planes were directly overhead, tremendous as they swooped low over him. Allen could see the knob of the lead pilot's head as he craned over the side of his ship to stare down at the man on the ground. Then the leading V banked sharply and circled, while the second V gained altitude and began a high patrol as the first flight came in to land.

Hardly had the wheels of the lead plane hit the desert floor before Allen was running toward the ship. He had almost reached the plane before the goggled pilot climbed from the cockpit and stood at rigid attention, his hand at salute.

Now, Allen thought, comes the first test! Will this man recognize me as Brack? Is my disguise perfect or is there something which will give me away, to die here at the muzzle of this pilot's revolver? Did Brack tell everything under the truth serum? Is that stuff infallible or did the spy hold something back, something that will give me away?

He forced his face into lines of composure and returned the pilot's salute stiffly.

"Good God!" he barked. "Where have you been. Your orders were to pick me up at dawn and it's hours after that. I might have died on the desert!"

"Sorry, sir," the pilot answered, in that tone of an automaton, used by all members of *Their* army. "Bad storms delayed our take-off."

"Storms, bahl!" Allen snarled. "In the old *Luka* days, we flew through hurricanes, if we had orders to fly."

He clambered into the cockpit and jerked a hand toward the east.

"General Headquarters!" he rapped. "And hurry! I've got important news for the Ruler!"

The motor roared and soon the ship was lurching over the desert floor, lifting into the air. At two thousand feet, Allen glanced back at the line of mountains to the west.

Beneath that pile of hills, beneath the desert floor at the foot of the hills, were nearly half a million souls who were depending on him to do his job. And ahead were millions more who, herded behind electrically charged barbed wire, hoped against hope that what Kingsley planned would come true.

From time to time, the plane's motor spluttered and Allen, looking in the rear vision mirror, could see the pilot's face twist in a scowl. After a prolonged period of spluttering, in which the plane lost altitude rapidly, Allen grabbed at the phone in the front cockpit and barked a question to his pilot.

"What in the name of God," he asked, "is wrong with this ship? Or is it the way you handle it?"

"Sorry, sir," came the automatic answer. "I thought you knew about the trouble we're having with our fuel. The vermin in the oil fields and refineries are turning out inferior gas these days. They claim the oil deposits are yielding poor grade crude but we know it is sabotage. Five hundred were executed last week in Pennsylvania as a warning, but the trouble keeps on."

Allen relaxed in his seat. So *They* were having fuel trouble, eh? Those Mexican wells they had set so much store on after *The Invasion* had petered out, he knew, and Pennsylvania crude, while it made good lubricating oil, it was too tough to be cracked into first-grade gas. That, he gloated, would give Kingsley with his *Freedom* in almost unlimited stores, another big advantage.

STRAPPED in a holster affixed to the side of the cockpit was a heavy service revolver. Allen removed the weapon and ejected the shells. He examined the bullets carefully and bit back an exclamation at what he saw. The cartridges were green

with mould. Evidently, they were old shells, reclaimed from the supplies captured by *Them* during *The Invasion*.

That could mean a great deal, Allen told himself. *They*, having conquered the world, believed they had no enemies to protect themselves against. The Rulers had relaxed the efficiency of *Their* admittedly pluperfect fighting machine. *They* had basked in *Their* false security, permitting their ordinance to grow old and outdated, satisfied to use their army only to keep their millions of slaves in subjugation while *They* grew fat on the proceeds of their exploitation.

Allen thought back to the days at the concentration camp—how long that seemed! When he had first arrived at the camp *They* had held drills, maneuvers, target practice, almost ceaselessly. Then the officers seemed to have become lazy. Drills and maneuvers came at less and less frequent intervals and, before Allen had escaped, were abandoned altogether, except for a monthly dress parade.

"Why do we need drill?" Allen had heard one of *Their* soldiers boast. "Nobody needs to sweat on the drill ground, just to learn to shoot down you vermin when you try to escape!"

It was, Allen decided, the old story of decadence following conquest. A hungry soldier, a soldier with a firm resolve, made the best soldier. Overwhelming success brought complacency and complacency inevitably led to sloth and decadence. Kingsley would be glad to learn that!

He looked over the side of the plane and saw the squadron was passing over one of the big industrial cities of the Mississippi area. Down below, slaves who once had been free men toiled for sixteen hours a day, on starvation rations, under the stinging whips of the beasts who ruled the country and the earth.

"God grant them strength enough," Allen prayed, silently, "to hold out until Kingsley and his men get here to drop a few well-placed paralysis bombs."

THE plane banked and headed north, speeding through the skies toward Cleveland, where the Ruler had set up his Capital, years before. Allen kept his gaze fixed on the ground, silently noting the fact that the farms over which he passed were in shocking disrepair, dilapidated, weed-grown, dotted with sagging, ramshackle buildings.

Here, too, the mark of *Their* heel was deep. Farmers who would not see one one-hundredth of their crops stored in their own bins could not be forced to get from the earth what they had coaxed forth in the days before *The Invasion*. Russia had learned that costly lesson, Allen recalled, centuries ago, but *They* had taken no heed of history's warnings.

The plane dropped closer to the ground as it neared Cleveland. The city, Allen noted, had been only partially rebuilt. Fire-blackened buildings still were the rule, relics of the bombardment that had preceded the fall of the city during *The Invasion*. About the only up-to-date buildings in the town were the massive, luxurious Ruler's Palace and the Army Barracks.

The slaves dwelt in the ruins that had been left standing, eking out a miserable existence while *They* wasted tons of the country's waning food supply in an almost continuous round of bacchanalian banqueting. The Ruler, esthete though he was during his conquest of the world, had turned to sensuality in all its baser forms during his latter years.

The plane dropped to a landing. Allen, noting the fuel gauge, saw that the dial indicator pointed to EMPTY. He chalked up another fact in the mental notebook he was filling. *They* apparently were running low on even the inferior fuel they were forced to use when a plane sent out to pick up an important man like Brack was fueled with only enough to make the trip, and no more.

A limousine, chauffeured by one of the Ruler's own Guard, was awaiting Allen as he left the plane. The trip to the Palace sent Allen through streets along which gangs of slaves were working at repair jobs, under the eye of whip-wielding guards. The slaves glanced up as Allen's car passed and, in some eyes, the masqueraded Brack saw stark hate.

Most of the slaves, however, merely looked at him dully, as though their hate had died when their spirits had broken. Would these latter, moving effigies of what had once been men, rise when the time came? Would they strike from within while Kingsley's army struck from without? Allen wondered.

They were at the Palace and Allen, using the word that had been supplied by Brack, rapidly passed through the outer guards into the ante-room of the Throne Room itself. He was not kept waiting long. Five minutes after his arrival, a secretary escorted him into the lavishly decorated hall where sat the Ruler.

CHAPTER IX

The Ruler

ALLEN restrained an instinctive snarl of hate as he approached the throne upon which sat the toadlike figure that was the Ruler. That the Ruler was mad, not even his closest advisors denied, privately, but his nearness to this foul creature came as a shock to Allen, prepared though he was for what he saw.

Megalomania which had marked the Ruler's early days had developed into a paresis which made the Ruler wholly irresponsible. Still, there survived in that twisted brain a spark of semi-sanity which kept the man from becoming a raving maniac.

He knew, and his advisors knew he knew, that those about him were only waiting for his tired brain to snap its last remaining tie with a vestige of sanity before rushing in, like wolves or vultures, to fight for control over his body. This knowledge, it seemed, kept the Ruler from pitching over the border into the abyss of total insanity and directed his madness into cleverly cruel channels.

He was obese now, weighing well over three hundred pounds. The mustache that once had been the target of all cartoonist's

ridicule had developed into a full beard, hiding the weak chin. His eyes were sunk behind reddish, puffy lids. His hands, wearing jeweled rings on every finger, toyed nervously with each other.

The ridiculous crown he had affected on attaining power, was askew on his bald head. His teeth were broken and discolored because, as everyone knew, he feared a dentist as greatly as he feared assassination.

At the Ruler's side were a group of women. On a table at his other hand were piled dishes of rich foods, into which the Ruler dipped a grimy paw at frequent intervals, whenever he left off his fumbling, senile caressing of a woman's shoulder.

Nauseated by loathing, Allen slowly approached the throne and bowed low. From desks at one side of the Throne Room, high officers of *their* army arose and walked toward the throne, the better to hear "Brack's" words.

The Ruler waved a bejewelled hand. "Speak up," he said, pettishly. "Did you find the vermin?"

"Yes, Highness," Allen said.

A gasp swept the Throne Room and the Ruler dropped the leg of a fowl on which he had been gnawing, to lean forward.

"You found them!" he rasped. "Good. I knew my Brack would find them where all others failed. Where are they?"

Allen reached within his tattered tunic and drew forth the map with which Kingsley had supplied him. He offered it to the Ruler.

"I was fortunate to steal this map," he said, "before my identity was discovered and I was forced to run for it."

"We heard over their radio that you had escaped," one of the high-ranking officers broke in. "How did you manage it?"

Allen waved a hand in a deprecatory gesture.

"It was fairly easy," he said, airily. "The vermin are quite without leadership or system. The others who preceded me were bunglers."

"How many men have they?" asked the Ruler, eagerly.

Allen simulated hesitation.

"About twenty-five thousand, I'd say," he ventured. "Maybe thirty thousand."

"Are they armed?"

Allen shrugged.

"If you can call it that," he said, lightly. "I saw some guns, some field artillery. You can imagine what it would be like, seeing that they're hiding like rats in their holes."

THE Ruler grinned evilly. He turned to the highest ranking officer of the group.

"Take a division," he ordered, "and go wipe them out! All of them! Accept no surrender. I'll show these vermin what happens to those who question my rule! I, who conquered the world! I, whom everyone laughed at!"

He broke into a tirade, harking back to his early days and recounting in detail, all the victories his armies had achieved. At length he stopped, panting for breath, his eyes wild, his mouth slobbering.

"Highness," said Allen, with a deep bow. "May I say a word? You ordered one di-

vision to carry out this attack. May I suggest that, instead, we use three divisions—three of our best divisions, including your own Guard?”

An army officer started a protest but was cut short by the Ruler's preemptory gesture.

“Why three divisions, Brack?” he asked. “Why three divisions to wipe out this mob when one would do?”

Allen shrugged his shoulders and made a wry face.

“This slaughter,” he explained, “must be complete and overwhelming. There must be no delay. The vermin must not be allowed to escape—not a single man. Now, with three crack divisions, we could surround them in their puny stronghold, massacre the entire mob within an hour and then, when the slaughter is complete, show motion pictures of the battle to the slaves. That would crush the last spark of revolt that still might linger among the fools.”

He turned to walk to a huge map that hung on the wall, over the officers' desk. He pointed to the foothills of the Panamint Range, to the very spot that Kingsley had directed him to point out.

“I know the terrain,” he said. “We send one division through a valley here, to encircle the mob from the rear. Our second division strikes here. Our third moves in here. Their defenses, according to the map I've given you, Highness, will be outflanked on two sides. Escape will be cut off. Our planes and tanks attack from the front.”

He looked at the throne and spread his hands.

“It is over in an hour—thirty minutes,” he said.

The Ruler's eyes glowed. He grinned and spoke to his War Minister.

“Three divisions, it is,” he said, “including the Guard. They're getting fat and lazy with no work to do. You're to command, Holsteig, and Brack—Brack will be your intelligence officer! Brack will have charge of keeping me in contact with the progress of the slaughter!”

He heaved himself out of his throne and raised a puffy hand in a salute, not to the men who surrounded him, but to himself.

“Another victory,” he croaked. “I am all-powerful. When I die, the world will come to an end. Tomorrow, the desert will run red with blood. Vermin's blood. Fools' blood. I drenched the world in blood once. I'll wet the desert with it again.”

His voice trailed off into unintelligible mutterings. The staff officers glanced at each other significantly and turned away as the Ruler fell back into his throne, his mottled face crimson. One jerked his head toward an ante-room door and they bowed out of the Throne Room, followed by Allen, to leave the Ruler with his food and his women, to gloat over the promise of another slaughter.

CHAPTER X

The Trap

THE Ruler's army was on the march, two days later. It streamed across Death Valley, rank upon rank of infantry, hun-

dreds of rumbling tanks, hundreds of roaring planes, battery after battery of field pieces. And in a huge bombing plane rode Mason Allen, the Ruler's liaison man—the man whose map was directing the Ruler's hordes into battle.

The sky was cloudless and the heat intense. The army's progress across the desert was low, with the mechanized forces halting every now and then to allow the infantry to rest. These men, Allen could see, were out of condition.

They had lounged in their barracks or loafed on guard duty for months while their stomachs swelled and their breath shortened. Now a forced march such as this brought them close to exhaustion, weakening the main body with every step the army took toward the Panamint Range.

Two divisions had been sent against Kingsley's forces from the east, one from the West Coast. Although approach to Kingsley's position from the West was much shorter than from the east, the Ruler did not trust his Western divisions too greatly.

They were made up of Orientals, the scum of *Their* forces, and were looked down upon by the crack forces of the Atlantic Seaboard and the Midwest. The Ruler, in fact, had so greatly depleted his Pacific Coast defenses that he maintained barely a division in the three coast states.

The Western Division, Allen knew, already had taken up its position in a valley, supposedly behind Kingsley's stronghold and was awaiting the arrival of the Eastern units. Little did the men bivouaced in the valley know that behind them, around them and in front of them, Kingsley's gun emplacements frowned down on them.

The entire division could have been wiped out in an hour, if the word had been given, but Kingsley, Allen knew, was waiting for the other two divisions—the stronger, more highly regarded units, to take their places in the trap.

SUGGISHLY, the infantry moved along, through the choking dust and enervating heat, becoming weaker with each mile traversed. The mechanized units were having their troubles, too. Inferior gasoline played havoc with tanks and planes. Supply trains failed to keep appointed rendezvous. Water, fuel, and food ran short.

Planes, serviced by lackadaisical mechanics, crashed. Whole regiments, Allen found, were commanded by men whose chief concern seemed to be a shortage of liquor and who stayed drunk most of the time.

Strangely enough, the discipline of the men was excellent. These members of *Their* army long since had relinquished all claims to being humans. Now they were flesh machines, ignoring discomfort, hardship, thirst, shortened rations, inadequate arms, to follow the orders voiced by the brutal, drunken men who commanded them.

At one time, Allen was touched by a twinge of pity for these thousands of men, marching to certain destruction. Then he remembered the scenes he had witnessed in his concentration camp when soldiers, inoculated with that same brutality that in-

feasted their masters, had indulged in unspeakable "games" in which prisoners were the victims. He wiped out his pity with a flare of a hatred that never would die so long as *They* still ruled.

Snapping open his radio transmitter, tuned to a wavelength which carried him direct to the Ruler—a wavelength, he knew, on which Kingsley and his staff were listening—he transmitted a message.

"Brack speaking, Highness," he said. "We will be in position within an hour. Our first division, your Guards, numbering forty thousand infantrymen, four hundred tanks, five hundred planes, one hundred artillery batteries—"

"I know all that," interrupted the Ruler almost peevishly, cutting off Allen's attempt to communicate the information to Kingsley. "When does the battle begin?"

"The first division is already in place," said Allen. "The second will be up within an hour. The men haven't stood the heat very well. There is a water shortage and our plane and tank fuel is low. The first division's batteries near Needle Peak lack adequate ammunition. The—"

"Damn you, Brack!" screamed the Ruler. "I don't want to listen to your tale of woe. Do with what you have. It shouldn't take three divisions to wipe out the vermin, anyway!"

"Very good, Highness," said Allen, softly. He closed the circuit and spoke into the dead mouthpiece. "Very good, indeed!"

The second division moved into position to the south of the first, seemingly well-screened from the place where Kingsley was supposed to maintain his "feeble" fort. Allen's receiver buzzed with a call and he switched open his earphones to listen to the commanding officer's question.

"Are the men well-placed?" asked the officer. "Are they in the positions you stipulated?"

"They are," reported Allen. "Your maps show you your objectives. The advance can begin at once."

"Immediately."

Allen's plane circled as he watched the Ruler's army go into action. First, he saw the artillery bellow in repeated salvos, blasting what was supposed to be the nerve-center of Kingsley's fort but which, actually, was a section of worked-out mines, exhausted oil wells and, Allen remembered with a quizzical smile, the old baseball field.

For ten minutes, the artillery blasted the hillside, sending shell after shell crashing into the ground, raising huge geysers of rock and rubble. Still, Kingsley's forces remained silent.

SWIFTLY following the artillery bombardment, came wave on wave of bombing planes, unloading their cargoes on the "vital points" dotted on the false map Allen had supplied the Ruler. The bombers droned over, wave on wave, while the ground below became an inferno, then drew off.

"They should be softened up now," said the commander, through Allen's earphones. "The tanks and infantry are going in."

Allen watched the huge mass of soldiery

begin to move, behind the protecting walls of moving steel. Closer and closer they approached toward their objective and still Kingsley held his fire. Allen's anxiety grew as the men approached the spot that had been marked on the map. If the first detachments reached that place, and found nothing, the whole trap might be rendered useless. The alarm would be spread, the Ruler's army would be drawn off and—

Ah!

The moment had come.

Suddenly, the earth around the advancing troops seemed to come alive. Hundreds of hidden trap doors sprang open and from each doorway poked the muzzle of a gun, belching orange flame.

The tanks were the first to feel the blow. Anti-tank shells, which Allen himself had helped bring up to an efficiency undreamed of in other days, blasted the iron monsters off the face of the desert. The jar and crash of explosions reverberated with such force that Allen's plane, ten thousand feet above the earth, bounced in the uprushing air currents.

Allen's pilot turned back to stare at him, his face white and tense. Allen reached for his holster and held the muzzle of his gun squarely in the other's face.

"Keep your course," he ordered, curtly, "and you live."

THE pilot turned back to his controls. Allen was aware of a clamor in his earphones.

"Good God, Brack!" screamed the commander from his plane. "My tanks! I thought you said they weren't armed!"

"Send in your planes!" Allen ordered. "Wipe out those guns!"

The bombing planes, which had retired to take on new loads, came roaring out of the east. Instantly, more trap-doors opened and the anti-aircraft went into action. Automatic sights and the triple-bracket shells, powered by Vengite, did their work well. The sky seemed full of wreckage, twisting and turning as it dropped earthward.

Now the machine-guns were opening up and the ranks of the crack Guards began to wither. That they were brave men or nerveless automatons is debatable, but it stands that the men went into action, ever forward, without hesitation. The carnage was terrific. Shells gouged huge holes in the advancing men. Falling planes crashed and burned hundreds. Exploding tanks accounted for an untold number of men.

Both flanks, the right and the left, were thrown into a confusion that became a panic. Gradually, the lines broke and turned to run. It was then that Kingsley ordered the hidden gun emplacements, behind *Their* forces, to go into action.

That spelled the end of the attack. Caught in a circle of crushing fire, the soldiers of the Ruler could do nothing except to mill aimlessly about, their numbers shrinking at a ghastly rate as Kingsley's guns took their toll. Horror mounted within Allen as he watched the carnage—a sickening horror roused by the sight of these men, beasts that they were, being mowed down by the thousand.

He switched open his transmitter and contacted the Ruler.

"The battle," he said, "is almost over. Everything has gone according to plan."

"Good," cackled the voice of the mad Ruler. "I am invincible. I am almighty. I—"

Allen switched off the radio and unstrapped his safety belt. He threw a leg over the side and plunged out into space, his hand reaching for the parachute release cord. His work was done. From now on it was up to Kingsley.

CHAPTER XI

Conquest

THE jerk of the unfolding parachute stopped Allen's headlong plunge and he looked up to see the plane he had left banking in a short circle. The pilot, he knew, would get him with his machine-guns in one last burst of his guns before he, too, died.

The plane dipped and rushed toward Allen. The drifting man felt the smack of a machine-gun slug in the cloth of his chute and closed his eyes. So this was it. Well, he had carried out his assignment—for Kingsley, for Mildred, and for the world.

There came a terrific crash, close to him, and Allen felt the impact of something striking his shoulder. A gust of searing flame swept his face and his parachute was thrown violently about in the air. Allen glanced up in time to see the plane he had just left break apart, riddled with shrapnel, and plunge, smoking, to the earth.

An anti-aircraft shell, smashing into the high-flying ship at the last minute, had saved him from immediate death. He was hit, he knew, and, moreover, he was drifting down to the shambles that had been the battle-ground, clad in the uniform of the Ruler. He had little hope of escaping a machine-gun burst while in mid-air or, if he reached the ground, of living through the inferno which blazed beneath him.

A gust of hot wind seized his parachute and carried him to the north, beyond the northernmost fringe of the battle. He was out of the withering cross-fire of shells when his feet touched ground and he fell to his knees, stripping his chute away.

He was working on the last buckle when he felt the prod of a gun muzzle in his back.

"Surrender," came a voice, "or, by Gar I forget we are suppose to take the prisoner."

He turned and looked up wearily at the bearded Frenchman who, so long ago, had been Allen's ward mate in The Refuge's hospital. Recognition dawned in the big Frenchman's eyes as he saw Allen.

"You are safe?" he yelled. "The big boss, he told us today of what you had done. You are a hero, *mon ami!* You have made pos-

sible this, our first, glorious victory!"

The big man embraced Allen in a bear hug, yelling jubilantly. The hug proved too much for Allen's wounded shoulder. Pain shot through him like a flame and his knees crumpled. He fell forward in a dead faint.

He came to, some time later, back in the hospital. The place was deathly still, after the ear-breaking camor of the battle that had filled Allen's ears when last he was conscious. He tried to sit upright and his movements attracted the attention of a nurse who hurried to his side.

"Quiet," she ordered. "You've got a nasty shoulder wound, Captain."

"Captain?" he asked, wondering. "I'm a lieutenant, or was."

"Was, is right," smiled the nurse. "The Commander-in-Chief has raised you to a captaincy on his staff. All while you were unconscious."

"How long have I been out?" asked Allen.

"Four days."

"But the battle!" the man said, urgently. "What has happened? Are we—"

"The battle," said the nurse, soothingly, "is over. It was finished in two days. They never recovered from the defeat they suffered here and, with the paralysis bombs striking every center they held, it was easy. Kingsley holds all of North America. South America and Asia already have smashed their weak forces with revolts of their own. There's still fighting in Europe but, with the Ruler gone, there's no doubt of the outcome."

"The Ruler gone?" asked Allen. "You mean he's dead?"

THE nurse nodded.

"He killed himself," she said, quietly, "when he heard about the battle here on the Panamint. They found him hanging in a tiny closet of the Palace, that silly crown of his still on his head, slanted over one eye."

Allen sank back on the pillows and looked up at the ceiling. His wound throbbed but he did not feel it. Instead, he was filled by a joy that once he never had hoped to feel again.

"Then," he said, softly, "there are no more slaves, no more of *Them*. Now we can begin to build our new world."

The nurse smiled and nodded her head toward the door of the ward.

"You've got a visitor," she said. "A young lady. She's been waiting outside ever since she reached here—from Peekskill. She's anxious to see you."

Allen closed his eyes, the better to savor this supreme happiness. Mildred, then, was alive—and safe.

"Just a second," he told the nurse, "before you send her in. I've got a bit of a prayer I want to say. A prayer of thanks."

Next
Month's
Novel

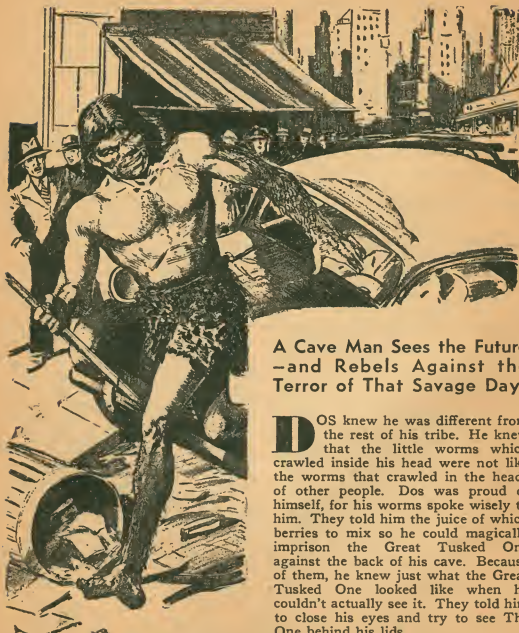
Gift from the Stars

By EDMOND
HAMILTON

A SNARE FOR TOMORROW

By ARTHUR J. BURKS

Author of "Kanaina," "The Discarded Veil," etc.



One of the bugs began chasing Dos

**A Cave Man Sees the Future
—and Rebels Against the
Terror of That Savage Day!**

DOS knew he was different from the rest of his tribe. He knew that the little worms which crawled inside his head were not like the worms that crawled in the heads of other people. Dos was proud of himself, for his worms spoke wisely to him. They told him the juice of which berries to mix so he could magically imprison the Great Tusked One against the back of his cave. Because of them, he knew just what the Great Tusked One looked like when he couldn't actually see it. They told him to close his eyes and try to see The One behind his lids.

He did, and he painted, never guess-

ing that what he left upon the walls of his comfortable cave would be found two hundred and fifty centuries later. He had no conception of centuries. He knew only that he was a man, but different from other men, because the white worms in his head made him do different things. They were his own magic, the magic of Dos.

They also taught him new names for things, that the rest of his tribe could not understand. But he taught them to Cil, his woman, and she remembered. She also had white worms—not such big ones, nor so many of them—inside her head, which made it possible for her to understand.

She questioned him, after he had laboriously painted the first Great Tusked One against the back of his cave. Using the light of the fire to see by, he had painted where nobody from outside could see it, lest it be stolen.

"Dos, why does not the Great Tusked One, whom you have flattened out on the wall, walk away?"

"Because," said Dos, in the limited language of the Cro-Magnon, "he is not really the Great Tusked One, but only his shadow. A shadow cannot move of itself, and the Great Tusked One is not here to move it. So I keep it trapped. I shall snare others, including the Great Taloned One with the long teeth. Yes, Cil, I shall snare many things, to make me powerful. They will make me know in knowledge of magic until I shall know even what the Invisible Ones behind the thunder and the lightning know. Then there will be nothing I cannot do."

"You will never be able to capture yesterday and bring it back to us, or drag tomorrow through the cave door before it is ready to come of itself."

"Even that," said Dos, shaking his head, a portentous frown on his broad brow, "may be possible to a white brain-worm of mine, when the white worms have fathered enough white worms to help them to help me. Yes, I may even bring back yesterday, and somehow snare tomorrow. I have thought much on the subject.

of his cave, looking right into the bright Sun god's one eye. His great shock of black hair covered his head and shoulders, hanging half-way down his back. His clothing was the skins of three of the Great Taloned Ones. Most men of the tribe needed no more than two to cover them. But they did not possess the treelike legs of Dos, his mighty torso and mammoth arms. But he had such slender, gracile fingers, that he could almost pick the moonbeams for his mate.

Cil herself was a big woman, mother of huge sons. But the sons were bad fellows. They were always away fighting other people, or stealing other men's mates, or simply trying to find out if there were anything beyond the blue bowl which covered the woods and the land and the streams. They never had a thought in their heads. They were sure that their father and mother were old, useless ones, who would be better off dead.

Dos, thinking of his three sons, Ab, Sho and Rin, gripped more tightly the handle of his stone-studded club, and ground his powerful teeth together. It was time he knocked some sense into their heads. But first he must know where to find them, and nobody ever did.

The white worms began to work in Dos' skull just then. He started talking to Cil. His mate was as wild and hairy and apelike as himself, sitting at the mouth of the cave.

"That big eye of the morning is a coward," said Dos. "It is afraid to come out at night, therefore it should not be a god. One day I shall battle with him to prove he is not. For I am also afraid of the night, and I am no god. But I shall find a way to carry fire into the night, and then it will have no fears for me.

"Even the Great Tusked One, and the Great Taloned One, will flee from me as from the Invisible Ones. I shall fashion snares of vines to catch whatever I wish. I shall cut ways through the forest. I shall make of this land a mighty place. I shall . . ."

He could think of nothing more to say, for he had already said more in a few minutes than he usually said in

HE was thinking now in the sunrise, as he sat before the mouth

seven risings of the One Eye of the Morning. He had used up practically all his words. Cil was grinning at him amusedly, as she grinned at their sons when they talked too much to no purpose. Dos got red in the face, and his words grew angry.

"I shall capture yesterday and bring it into our cave. I shall bring tomorrow then, too—when the white worms have told me how."

He rose to his great height, a mighty, powerful man. He yawned hugely, then suddenly bellowed a challenge at the sunlit morning. The sound went booming and roaring through the green forest, was instantly answered by the trumpeting of many Great Tusked Ones. To his right it was answered by several Great Taloned Ones. Along the cliff, where his friends and relatives lived, it was answered by other bellows.

But he noted with pride that no bellow was as great and godlike as his own. He stood by himself, a master bellow, a master hunter, a master with his filled with white worms. He was master-man with a master mate. It was wise of the others not even to try to bellow as loudly as he could.

DOS glanced down at his garments. Grinning, he spoke to Cil of the blue eyes and black hair.

"I need new garments, and the Great Taloned Ones are presumptuous this rising of the One Eye of the Morning. I shall take three new skins to replace these three old skins."

He did not say three, but indicated the number with his long, hairy-backed fingers. Then he warned his mate to be watchful for attack and to retire into their cave. He stroke manfully down the side of the hill toward the sounds the Great Taloned Ones had made. As he walked, his mind was busy. Or, rather, the white worms caused him to think.

"Why should there be many Eyes of the Night, and only one Eye of the Morning? Why should there be many eyes to light the dark, and but one to light the day? There is much magic above and below, if only I have the wit to find it. And I must find it, too, or Cil will laugh at me. Then I shall be

forced to knock her brains out with this club, and she is the best mate, for all her grinning, of any in the land. I should be sorry to free her skull of the white worms by breaking open her head."

He had no idea whence his tribe of Cro-Magnards had come. According to stories handed down from father to son, they had simply come crawling into this land. They had come from under the blue stuff that held up the One Eye of Morning, and the black stuff that held up the many Eyes of the Night. But no one could remember whence, unless they had once been gods, had been cast out and had forgotten.

There must be Invisible Ones beyond the blue and the black. If one passed through the blue or the black, one might also become invisible, and never see oneself again. But of course if one became invisible knowingly, one could become visible again simply by crawling back under. The time to do it all was during the darkness, when there were no other men to hear or see, and the gods were whispering in the trees, along the streams, and in the blackness where the many Eyes of Night were. Just once, Dos, had spent a night in the open, high in a tree. He had been terribly frightened, and Cil had guessed it when he came back in the morning. But she hadn't dared to say so—not after seeing how grimly he looked at her, daring her to speak, and how savagely he gripped his club. Cil had no wish to go motionless merely because Dos was so easily angered.

People who went motionless went spoiled, too. They never walked again, and soon were nothing but bones, and then just nothing at all. There was no telling what happened to them after they became invisible.

"And Cil," thought Dos as he reached the woods and plunged in, "expects me to capture yesterday and bring it to her as a present. If I do not do it soon, she will tell her father and brothers that I have made a false boasting. There will be laughter and trouble, and I shall have to break in the heads of all her relatives. And I may

even be made to go motionless myself, because there are so many of them, and some of them are good fighters. If it were possible to go motionless and be able to come back when one wished"

That idea came to him because he recalled that sometimes while he slept, he got up and left himself behind. Then he went roaming the woods, hunting, bellowing and enjoying himself, fighting, killing, and being almost a god. Often he had killed Great Tusked Ones and dragged their huge bodies right into the cave. But whenever he opened his eyes at rising, they had always been gone. If he ever found the thief who stole them away, he would beat in the thin skull with his heavy club.

BUT there was something here about which a man should consult the white worms. There were so many mysteries, so much magic and unseen power. But great cats were power, and Great Tusked Ones were power, and he could trap them. So maybe, if he found the way, he could trap, not yesterday, but tomorrow. Everybody knew what had happened yesterday, and he would have to prove everything. But nobody could know about tomorrow except himself, when he brought it back.

Of course, when he snared tomorrow, he would have to let it go again, so it could happen in its appointed time. He would have to allow everything to happen just as it would occur when he was going to hold tomorrow prisoner. If he did not, everybody would say he was a false-sayer, and he would have to use his club.

Abruptly a Great Taloned One charged at Dos. As he watched it come, he spoke to himself.

"Here is power greater than mine. It has no club, yet I must use one to slay it."

The Great Taloned One sprang. Dos stepped aside, swung his club. It struck the Great Taloned One in mid-air, with a resounding thwack that was most satisfying. The Great Taloned One went motionless. Dos knelt beside her, and bit a hole in her skin. Thrusting his fingers into the hole, he began ripping

her skin off. He had scarcely completed it when he had to club her mate, and then her sister, or her brother. He had got his three skins, at the cost of a few scratches. But they were too small to matter.

"I shall have to find a stronger power and a greater magic than the club, if I am to capture tomorrow," he realized. "But where is this power I must find? Will I live long enough to find it?"

From that day forth, he began to hunt diligently for power. He studied the many Eyes of Night, and the One Eye of Morning. He studied the places where the Tongues of Flame from the Sky struck, and saw what havoc they had wrought. He felt that if he could capture that havoc he would have found the power. He tried to see the Sound that Rolled Across the Sky When the Waters Fell, but he could not see it, though he sensed that it was power.

He dug in the earth to find it. He found yellow metal, and green stones, and hard bright stones that were pretty. But none of these had power, except to make women jealous, and men greedy because of the women's jealousy.

One day, though, he found a queerer, larger stone than any of the others, which did strange things to other stones. It grabbed them and held them so tightly that all his strength was needed to pull them away again. The weaker stones liked to be held, for they returned of their own accord, unless taken far away or firmly gripped.

Mighty as Dos was, he needed the help of his entire tribe to carry the flat stone into his cave. He had resolved to sleep upon it, and see what the white worms in his brain could do. His relatives dared not laugh at him, so the stone was taken into the cave. Dos slept upon it. He spoke to the gods just before he slept.

"Let me go visiting tomorrow, that I may know what it looks like and lay plans for its capture," he asked.

But he realized sleepily that tomorrow would be little different from today. Far back in the long ago had been greatly different from today. Away up

through many, many tomorrows—even through many Times Of Moons—things again would be different. For some day all the people would have white worms of thought in their heads. Then they would find ways to escape danger, to enjoy more comforts, to be happy and unafraid.

"Let me see a Tomorrow," he stated to the gods, "that shall be as close to the end of time as now is from the beginning. Take me to a place which shall be even beyond the lands of the Invisible Ones."

He did not sleep, for he was careful not to close his eyes too tightly. But the gods must have been in the stone that captured and held other stones. Instantly he could feel it grip him, with hands that he could feel but could not see. Many, many hands, each with many, many, fingers were pulling him right into the heart of the stone—and he was still wide awake!

IT pulled him right into Tomorrow. He knew at once that he was close to the very end of time. It landed him in an utterly impossible place, which would have been too great and too huge for even the Invisible Ones.

In this Tomorrow there were countless caves, all of them straight up. There were countless cave-mouths, too, but the mouths were more like eyes. He could see no way of reaching them, that he might enter and attack the people inside. But the people did not seem to be warlike, if these strange creatures were men at all.

They were much smaller than Dos, and did not wear garments of hair or fur. They wore things of many colors, covering everything but their faces and their hands. Dos decided that they have little hair, or even none at all, for they would not hide behind garments if they had real shaggy, beautiful hair. In disgust, he looked down at their feet. They were so small, it was no wonder that these vermin hid them in shame.

A man came out of a cave-mouth that was right on the hard, flat ground. He was almost as huge as Dos, so it would not be wrong to fight him. Dos bellowed, bringing his club down on

the man's head. Immediately the big man went motionless. Yes, he was a man, for all the strange garments he wore. The club had opened his skull, and red streams poured out with the white worms. He was dead in exactly the way all of Dos' people died.

Dos had been puzzled by the lack of attention they paid him. He was not used to being ignored. He had been puzzled by a lot of things besides the tall, straight caves in straight-up-and-down mountains with tops like teeth. There were larger worms than he had ever seen, running back and forth along a smooth, straight trail. The worms had eyes along both sides, and there were people inside the worms, looking out through the eyes. The worms made a fearful, roaring noise, and they left solid footprints behind them.

There were also bugs of such size as Dos had never seen. The smell they gave off was worse than a dozen Great Tusked Ones that had been dead a long time in the Eye of the Morning. Yet people rode right in the stomachs of the bugs, and looked out through the bugs' eyes. These people of Tomorrow close to the end of time certainly must have had weak eyes. They actually had to use the eyes of worms and bugs!

"I'm glad I won't be living when this happens," thought Dos. "There is no strength of muscles and seeing. There is nothing to live for, and something will certainly will kill you, anyway."

That was when the big man came out of the cave-mouth. He was much too careless, for he did not look about him, and he did not even carry a studded club. Dos roared, swung his club.

It was strange what happened right after he bellowed and swung his club. People opened their mouths for the weirdest of sounds to come out. These sounds Dos would remember so he could imitate them to Cil and their relatives, when he went back to Today—if he got back.

"Maniac loose!" shouted a man near him. "He's a killer!"

Everybody started looking at Dos. He stood and bellowed again. Then he grinned and pounded his chest with his free hand, proud at last that he was being noticed.

PEOPLE started running wildly in every direction, but never toward Dos. The big worms began to make clanging noises. The bugs started to roar sounds of many different kinds. Women screamed. That was one noise Dos understood, for women never changed. They always screamed in trouble. Men wearing the same kind of garments—blue, with shining stones or metal right down the fronts of their chests—moved hesitantly toward Dos. One of them yelled in the silly tongue of Tomorrow close to the end of time.

"Take him alive! He's from the Odditorium!"

Dos did not comprehend, but he understood attack from in front. Swiftly he put his back against a straight-up hill, and started swinging his club. At that moment, a man pointed a finger at him. It was a finger that shone bright in the Sun, so it couldn't be a finger at all. Yet somehow the finger spoke, and something stung Dos in the left side. It bit and ripped through his skin garments and into his flesh. The blue-clad one had the Voice and the Power of the Invisible Ones on his side. Dos knew he didn't have a chance.

He flung his club at the advancing men in blue. Whirling he darted into the cave-mouth whence the man who had just gone motionless had come. The mouth was wide open, but something held him back as he went in through the wide-openness. There was a great, shattering sound, and bright, flat things crashed all around him. He began to bleed because some of the bright, flat things had bitten him. Savagely he rushed on inside.

The place was filled with people. There were bright garments all over the tops of flat rocks that stood on trees. There were many women, handling these with their fingers, and clucking at one another. But the cry came in from the cave-mouth.

"Escaped maniac. A killer is loose!"

The women scattered, shrieking. Some of them went under the flat rocks on their hands and knees, but they did not stop screaming. Some of them flung up their hands and fell on their backs. The rest of them just ran, waving their arms madly, and screaming.

There was a trail that carried people on it, as it slanted up. Dos rushed to it, but it didn't move fast enough. He ran up it, brushing people aside, picking them up and throwing them over the edge of the trail that moved. It moved right through a hole in the roof of the cave. The roof of the cave was the floor of a cave that was just above it. There were many things here, all stranger than anything Dos could possibly have imagined.

There were rocks of many shapes, all of them with eyes. These people certainly had a lot of need for eyes! But what puzzled Dos here was that so many of the rocks were actually talking. He couldn't understand what was said, but he knew talk when he heard it.

"Maniac Loose!" one rock yelled. "Maniac Loose!"

He recognized that, because he had heard it so often. He shaped it with his huge lips, and bellowed it when he was sure he had the sound correctly. It certainly startled the people in the cave-above-the-cave. Then there was another moving trail, but he didn't follow it. By now he understood that the moving trails led upward from cave to cave, and the caves were piled atop one another. Man must be mighty, after all, that he could dig caves and pile them one above the other, almost up to the One Eye of Morning.

THERE were those shrieking sounds again as people among the Talking Rocks fled in terror. The sounds were the same as the one he had heard when the invisible bee had stung him. People in this Tomorrow did not throw rocks or use clubs. They threw invisible bees at their enemies, using only a false finger with which to do it. Men in blue were coming off the moving trail and spreading out. Each of them held one of those gleaming false fingers in his hand.

Dos began to throw Talking Rocks at them. But when he lifted the first one, his fingers told him it was wood instead of rock. He had never seen trees shaped like this, nor growing inside a cave. But how could one know for certain what might happen in this

Tomorrow?

"Burn him down!" yelled one of the blue men who had yellow marks on his sleeve. "We can't let him take New York apart!"

Dos did not understand, but he knew how traps were set. Snatching up one of the Talking Trees with the odd shape, he whirled and ran toward one of the eyes that looked out on space. He flung himself right through it, with arms.

Dos bellowed with terror. He was going to fall on a hard piece of ground and hurt himself. Then he would be easy prey for his enemies.

He grasped the Talking Tree in his right hand, shot out his left hand. He grabbed a long, smooth limb that grew out of the side of the straight-up mountain. He stooped his fall, hung for a moment, and dropped to the hard ground.

He began running along in front of the rows and rows of caves. The bugs stopped moving, and the worms stopped moving. People ran in and out of cave-mouths as though they were being attacked by Invisible Ones. And then the Talking Tree in his arm began to speak again.

"Maniac Loose! It was thought at first that the strange being which appeared on Broadway and Forty-second street, had somehow escaped from the Odditorium or from the Fair. Reports just brought to us indicate that no freaks are at large!"

Dos recognized none of the words except "Maniac Loose!"

People were throwing things at him now. One of the bugs came right up onto the hard hot trail along which he was running. It tried to get him between its head and the straight-up side of the mountain. Dos suddenly realized that nobody was staring at him through those eyes. Everybody was trying to kill or capture him. That hadn't been his intention at all. Dos had planned on doing all the capturing!

The Talking Tree was speaking loudly now.

"A report has just come in, in connection with the maniac at large. A large, flat slab of magnetic rock, for which none can account, has just been

found in the small storeroom of Gelb & Company, near Forty-second and Broadway. That was where the hairy maniac who looks somewhat like a Cro-Magnon was first seen, and where he murdered a man recently identified as Devin Roarke, world's champion boxer. . . ."

That flat stone held the key to Dos' life, but at the moment he did not know that. He was only trying to keep away from these people, because he had no club with which to fight them off. When he dropped the Talking Tree, it broke apart. But he had to have his hands free, to keep these people away from him.

SEVERAL men jumped at him from secret places. They had only their hands, and were easy to manage. He plucked them off, one at a time, and banged their heads against the trail or against the straight-up mountains. They went motionless instantly, leaving only those who were running away.

One of the blue men pointed a gleaming finger at him, and Dos heard something strike the mountain beside him. Then it became visible and dropped almost at his feet. He picked it up. It was a shapeless piece of rock, which he had to drop instantly, because it was fiery hot. He sucked his burned finger and began running.

That shapeless piece of rock, if it hit him hard enough in the right place—the white worms in his head told him—would make him go motionless. Now it really was time for him to get back to Cil and their cave. He could always return, for he had found the way. Later, he would further investigate this strange Tomorrow close to the end of time. He would come by stealth, though, making certain that nobody saw him.

He knew he had to go back the way he had come. But that would be simple. He turned back, running swiftly, bellowing to frighten everybody out of his way. He recognized every place he had seen before. It wasn't difficult, even in the strangest place he had ever seen, for him to find his way back to the cave-mouth where he had killed the big man.

Expectantly he went into the cave-mouth. There was the big, flat stone that had taken him to this strange, horrible Tomorrow. But there were many people standing around it. Some were actually trying to move it.

Dos roared his anger. He flung them aside as he reached the stone. Some of them got their skulls crushed, so mighty was the power of Dos.

He threw himself flat on the stone, felt the invisible fingers clutching him, squeezing him. The stone that clutched other stones was swallowing him.

People began to get dim. He could see how surprised their faces looked as they stared at him. Now he was safe, though, lying on the stone that was filled with magic even greater than theirs. . . .

THUS Dos escaped from the Tomorrow close to the end of time and found himself back in his own cave. Standing motionless as they stared down at him were Cil and most of their relatives. Their eyes were filled with terror.

"You must never do this again!" Cil cried. "You lay down on the rock and you became invisible. So did the rock. You have been away for so long, and you are bleeding!"

Dos sat up and grinned at her.

"I have visited a Tomorrow close to the end of time," he said. "I shall tell you of the marvels I saw there. Listen carefully to what I say. And harken to this—if any one smiles and does not believe, that one shall immediately be made motionless by me!"

They kept their faces absolutely straight as Dos reported his adventures in the Tomorrow close to the end of time. They looked as though they wanted to look doubtful, but they gave him nothing over which to grow angry.

"In that place," said Dos, when he had told everything else, "I was a god. I attracted the attention of all. They admired me, and were afraid of me. I slew many of them, and their admiration grew. I even learned a little of their language. At least I learned the name they instantly gave to me, their god who appeared out of Nowhere."

(Continued on page 124)

Okmulgee, Okla.
Hazleton, Pa.

Des Moines, Iowa
Sioux City, Iowa

Look Men!

Here's a Partial List of States, Cities and Institutions in which GRADUATES of I. A. S. were placed in positions as Finger Print Experts!



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Pueblo, Colo.	E. Lansing, Mich.
Idaho Falls, Idaho	Giebs, Arizona
Ogden, Utah	London, Ont. Can.
Lorain Co., Ohio	Henryetta, Okla.
St. Paul, Minn.	Seattle, Wash.
Pittsburgh, Pa.	Fondale, Mich.
Lincoln, Neb.	McAlester, Okla.
Birmingham, Ala.	Negaunee, Mich.
Columbus, Ohio	Lewton, Okla.
Havana, Cuba	Crown Point, Ind.
New Haven, Conn.	Bay City, Mich.
Great Falls, Mont.	Roanoke, Va.
Galveston, Texas	Glendale, Calif.
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Stillwater, Okla.	Drumright, Okla.

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Orlando, Florida
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Fort Collins, Colo.
Bedford, Ohio
Huntington, W. Va.
Salt Lake City, U.
Taft, California
Jamestown, N. Y.
Phoenixville, Pa.
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Medla, Pa.
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East Chicago, Ind.
Green Bay, Wis.
Neenah, Wis.
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The Reader Breaks

CUMMINGS OFF HIS ORBIT

By D. B. Thompson

Nice cover on the Sept. T.W.S.; the best, I think, since the one for "The Eternal Light." I don't particularly like the color of the Derks, but that is no fault of Bergey's; friend Friend says they are red.

"Prospectors of Space" is my choice for first place among the stories. Re-assembling the comet is novel, and appears credible—but I am no authority on space mining!

Second goes to "West Point of Tomorrow." Something seems to be lacking here; just what, I don't know. Perhaps it is just that I can only admire the hero, not like him.

"The Vanishing Men" appealed to me least, chiefly because of an obvious error in assuming that the rotation of the Earth would be the principal factor in determining where the men would rematerialize. Since the orbital velocity of the Earth is around 1,000 miles per minute, it would necessarily have more influence than the speed of rotation. Of course, the direction would still be west.

"Formula For Life" is worthy of special mention, in spite of (or because of?) the incredible theory presented—and the satisfactory ending. Kummer asks for comparisons; well, frankly, I think "The Tyrant of Mars" is one of his better efforts. The half-breed Rinnas are well presented. But the chief merit in the story lies in the fact that they finally win out because their scientific tools stand up, without a final recourse to their fists.

Wesso has done very well in his illustrations for Kent's and Sheridan's stories. The same goes for Marchioni's drawing for "Prospectors of Space."

The October line-up looks great.—3186 Q St., Lincoln, Nebraska.

SCIENTIFICTION'S LEADING MONTHLY

By Charles Hidley

Because the September issue was such a gain one, I thought sure it was celebrating some anniversary or other auspicious occasion, possibly the 11 Anniv. But I find that there is no such justification, so the issue should be congratulated on general principles. This has been the best of the thirty numbers of T.W.S. presented and does most to prove your claim of St's Leading Monthly. Now only the general format needs revisions for the better.

Although the stories were grand and some of the best science-fiction I've read in many months, the appearance of the four greatest artists in the field, Morey, Marchioni, Paul and Wesso, in one issue was the greater thrill. They are all my favorites and I hope to see them in many future issues.

The biggest and only disappointment of the issue was the Bergey cover. His work is amazingly lifelike and his use of colors is

In this department we shall publish your opinions every month. After all, this is YOUR magazine, and it is edited for YOU. If a story in THRILLING WONDER STORIES fails to click with you, it is up to you to let us know about it. We welcome your letters whether they are complimentary or critical—or contain good old-fashioned brickbats! Write regularly! As many of your letters as possible will be printed herein. We cannot undertake to enter into private correspondence.

masterful, but why the silly, adolescent, comic figures that were not described as such in the story?

Burks is first with his West Point yarn and it was a pleasure to read a space story once more. I dislike "Coventry" themes, though, and their obvious endings. The Paul illustrations, along with his one other, were the best in the book, and he should have done the color for the same story. Paul should not use the shading he does because the paper you employ cannot hold it.

That very different science tale by Sheridan, "Formula for Life" is second and had such terrific scope as to be breath-taking. I didn't care much for his previous work. Third is "Tyrant of Mars" by Kummer with a superb Morey pic. It contained much good science and little slam-bang, a novelty in his recent yarns.

Fourth is Jameson's "Prospectors of Space" and fifth is Cumming's "The Vanishing Men." The former had a grand new theme and the latter had an old one well polished up and shining new. Pete Manx is sixth—and side-splitting. "The Stolen Spectrum" is seventh with much better dimensional men pictured by MM. Hamilton short last with obvious climax.—New York, N. Y.

FOUND—A TIME MACHINE!

By E. Earl Bielfeldt

I know that you know it, but I'll tell you anyway. Pete Manx is just about the most entertaining character ever to grace the pages of yours or any other of publication. He may be a cheap gambler, but, boy, does he have ideas! Mr. Kent certainly dreamed up a real character when roly poly Pete Manx was born. As a time traveler, none can beat him. I can't wait until he meets the missing link, only I hope that he's not mistaken for it. That idea of making Shakespeare cut rugs all over the Mermad Tavern was positively novel.

Speaking of novel, the one in the September T.W.S. was very good. The description of the space battle was realistic and I thought that the game described in the story was unusual. Mr. Burks is a good author. My only kick is Paul. His stuff may have been okay ten years ago, but not in 1940. His technique, while very good, is a little outmoded, I think. I believe that I know whereof I speak, because I studied art for four years. Your best illustrator was Wesso.

In "The Tyrant of Mars," I liked that sentence in description of Karragon: "But now again he would tug at his small mustache." Mr. Kummer, do you mean . . . ? I noticed that the illustrator put a certain dictator's mustache on him, so I guess Mr. Kummer does mean . . . The story was well up to the standard of the author.

"Formula for Life" was also very well done. The conflict within Jim Kennedy was graphically portrayed. So much so, that I felt sorry for the fellow. I think he made a good decision, too, because, even though it meant destroying human beings, those little people would never do the outside world any good, and be saved a race of beings, alien though they were.

"Prospectors of Space" was unusual also. The idea of a ship drawing to it particles of a star and fusing that star once more into a whole is new—and good.

"The Vanishing Men" was written by Ray Cummings. I guess I don't need to say any more.

"The Night the World Ended" was rather surprising. It had me geared up for a catastrophe, only to have that delightful let-down

INDIGESTION?

sprung at the end. Edmund Hamilton is one of my favorites, anyhow.

On to "The Stolen Spectrum." The name of the villain was cleverly constructed. I'll bet no one thought to analyze that unusual conglomeration of letters.

Oh, before I forget—a personal to Alan Saun: I've discovered your time machine! Professor M. T. Head, your "trusted" colleague, evidently came back in the dark of some night and fished it. How do I know? Well, the other day when I was fiddling around with my super invention, the Temporascaner, I happened to be looking into the year 3754 and I saw something arresting. It was in an ultramodern office. Two men were talking about an odd looking machine in the center of the room. One of the men had a wild look in his eye (the left one) and was dressed in present day clothes—a little shabbily.

I'll describe the machine. It was about five feet high and six feet around, shaped like a boat on the bottom. A series of fine wires connecting to various dials and buttons on an instrument panel were connected to a cross bar on top. That's all I could make out, but if it describes your machine, all I have to say is, don't be so trusting next time. The place, in case you're interested, was (or will be, or something) Tronti, Kanda. Perhaps that means something to you.

So long (and I guess this letter was long) until next time.—Maple and Cherry Lanes, Lardner, Ill.

LADIES' MAN

By Arthur K. Barnes

It has been called to my attention that the editor of this estimable magazine is trying to egg me into a battle with a certain Mr. Joe Arcler. Sort of let's-you-and-him-fight idea. But no, thanks. When I feud, I like to pick my opponents—like poor, old broken-down Henry Kuttner sweltering out his last days in that stew-pot they call New York City. At least if I can't lick Kuttner, I'm sure I can out-run him. But feud with an army man? Not my pleasure.

However, I did read Mr. Arcler's challenge. I have since been in a rest home under doctor's care, suffering from severe shock to my synapses due to an unwarranted blitzkrieg upon my favorite girl—Gerry Carlyle.

There are several things that might be said in rebuttal. I might call attention to Mrs. Osa Johnson, contemporary counterpart in almost every respect to Gerry. I could remind him that there is scarcely any man's occupation today which has not been invaded competently by one or more career women (cuss 'em, anyhow!). Or if it's the matter of muscles that's bothering Mr. Arcler, after all, I believe that Tommy Strike generally will be found in action when brute strength is needed. Or I might delicately hoist Mr. Arcler on his own petard and graciously remind him that the even he admitted they were "good stories."

These, however, are reasonable arguments, and Mr. Arcler is obviously not a gentleman of reason but a gentleman of prejudice. Alas! I have tried to give the readers stories spiced with character—a style a millimeter or so removed from Brown's, is still very plainly un-

But there is one bright spot. This regrettable affair has been such a terrible shock to me that I have an excellent excuse to take a vacation and go fishing, to recuperate. The only difficulty is that I'll have to do another Gerry Carlyle story before I can get the money to go fishing. It's a vicious circle, and Mr. Arcler has no one to blame but himself. And serves him right, too.—Tufunga, Calif.

GRAND SLAM

By Carl H. Anderson

Now listen, . . .

A bug-eyed monster is a bug-eyed monster no matter whether Brown draws him or Bergey draws him. And brother Bergey, while possessing a style a millimeter or so removed from Brown's, is still very plainly un-

(Continued on page 120)

HAS your physician told you your digestive disorder is partly due to a lack of B vitamins? And that a generous supply of this important group of vitamins is essential if the digestive tract is to work properly? Ask him about Fleischmann's Fresh Yeast. Many authorities hold that yeast is the very best way because the vitamins are natural not synthetic. And Fleischmann's Yeast contains the complete B family—not just some of the more common members, as do most costly concentrates.

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(Continued from page 119)

der the baleful influence of his predecessor. The Derklans of the September number really approach the power and sweep of Brown at his bug-eyed worst.

Which brings us to another oddity. What sort of a bludgeon does friend Friend hold over the art department? I can't remember an instance in the annals of science fiction wherein a writer had the astounding luck to land on the cover eight times in a single year as the friendly Missourian has done.

Happily now we leave the distressing subject of that serialized atrocity you call the cover, and venture into the harrowing realm of the interior.

We glance at old-timer Morey's typically Moreyesque job—disheveled, pantherish, femme—bald, cavern-mouthed villain—claustrated, desperate heroes rushing to the rescue—ah, me, I can believe Kummer's confession that "The Tyrant of Mars" was his second stiff attempt.

We gavotte gleefully through Kent's "Comedy of Eras," noting that the biggest era made thus far by *ye* Wonder is that you push Petus too hard. Every other month is just tonicky enough.

We stare at the catastrophic job Marchiondi did for "Prospectors" and wonder what Brother Jameson thought of all those trick gadgets that Monsieur Marcus specializes in. Still the best yarn of the issue.

We stagger dismayed through Cummings' "Vanishing Men"—sick to the core upon recalling his old, deft touch, lost now, apparently forever.

Wesso, still fighting grimly, introduces us to the menaced civilization plot, once again, built this time on a tricky variation of the old reverse-viewpoint theme. Too much pathos, or else I cry too easily.

Next, wonder of Wonder, we trip over a nugget. E. Hamilton, he of Captain Future and the History of the Solar System and the roistering, wretched Planetaria, here blooms coyly by the wayside with the cleverest piece he's drubbed out of his old riveter in many a day. And that, coming from an old Hamilton-hater like me, is praise aplenty.

Burks is adequate and Friend inadequate in their respective contributions.

But here, kids, is the payoff.

The Render Speaks, which seriously gave signs of wallowing out of the morass of juvenility, asinine balderdash, and downright sickening banality, once more slogs back into the old groove.

Get a load of this:

Our Martian correspondent—nlp blingo to him—speaking American for once, has lost ums pretty time machine. Well, chooksey-ple, if you look, you'll probably find it behind that pile of adjectives you stacked on Doc Cyclops, which, by the way, was about as sub-atomic as Little Red Riding Hood, which you are doubtless familiar with. And, too, your Martian mumbo-jumbo of April '39 was not your first letter, as you modestly admit. Mr. S. Y. F. was present in February '39—quoting very prettily a poem by Carruth.

Then, too, there is the mad-man of Aqueeduct Ave who gibbers of a Sarconi novel expanded to fit S.S. Egad and damme! 50,000 words of Shallcross multiples would certainly have established a new high in the Art of Confusing *ye* Hapless Reader.

But then, Brother Hidley never does like the stories I do anyway. He even jumps on Doc Smith which is comparable to treason and deserving of court-martial.

And since last sentences seem to be carrying punch lines it is not surprising to find Hidley's following the general trend. Except that it, too, is oddly reversed. It is the artist, not the cover, who should be executed.

Well, Ed, this hasn't been so cheerful, has it? Ah, well, next month is another day—or something.

I might close by saying, as Miss Myers so generously does, that your mag is the best on the market.

But I won't.—Petoskey, Michigan.

"SONG OF THE IMMORTALS"

By Lynn R. Sloan

About us hangs our universe

Amassed for us to view.

A diamond studded canopy
Of velvet's deepest hue.

Does gazing out upon it all,

Oftt cause your thoughts to stray;

And stir up thrilling memories

Of long ago and far away?

Remember when we watched the sun

Claim Mercury as its prey?

Oh, how it flared in brilliance,

But oh, so swiftly died away.

And Pluto's vast ice cities;

Mars' dead minarets so tall;

And saw upon our own Earth,

Atlantis rise again and fall.

A pearly strand—some far-off isle,

A fragrant breeze and we,

Breathless, watched a copper moon

Rise o'er a silver sea.

The surf broke on a coral reef,

A million myriad beads.

Sweet music softly came to us,

Aeolian through the reeds.

We pause awhile within our lives

And live from nature's store.

Happy, carefree, dreaming days

Upon this planet's shore.

But soon our roving spirit calls

And answer it we must.

Such are the spoils and penalties of

An age-old wanderlust.

Then let us rocket down old space trails,

And blast out trails anew,

Together through the universe,

Forever, just we two.

—Mears, Michigan.

FRIEND'S COVER MONOPOLY

By Parmer Farrell

If you don't do something about that so-called artist Bergey, you can expect one capsule of Ganyemedian plague germs in the next mail. He must be a cousin of Oscar J. Friend as so far he hasn't drawn any covers for anybody else's stories. I suppose that's the reason you keep him on as Friend seems to have been constantly desecrating the front of the mag with ever since the organization of the SFTPOBEMOTCOSFE, just to spite that noble society, I suppose. Incidentally, Mr. Bergey, the BEB's on your latest smear have extremely jovial expressions on their pans to be as tough a bunch of eggs as Friend made them out.

I suppose it's because he always writes about those bug-eyed monsters that you have been constantly desecrating the front of the mag with ever since the organization of the SFTPOBEMOTCOSFE, just to spite that noble society, I suppose. Incidentally, Mr. Bergey, the BEB's on your latest smear have extremely jovial expressions on their pans to be as tough a bunch of eggs as Friend made them out.

Now to direct a shower of Irish confetti at Friend himself. Aphasla, Mr. Friend, does not just mean loss of speech without impairment of the vocal organs. That is just one form of that highly interesting disorder. It can also mean loss of the ability to read your own language or write it. In some cases the patient can read his own writing, but nobody else can make head nor tail of it. In others he can talk gibberish which he can understand but no one else can. Still another variety is being unable to understand another's words without deafness.

I thought I had heard of just about every photographic gadget made, but Friend's "Infra-red lens" is a new one on me. If Eastman Kodak ever put out anything like that, they certainly never told anybody about it. If

Mr. Friend knows where to get one, I wish he would tell me. Think of the saving on flashbulbs for night pictures!

Max C. Sheridan: For your information, weight varies as the cube of size, strength as the square. I'd like to see a unicellular organism like *Cladotrix* take any shape except that of a pancake if it was increased to the size you have them in your life in this issue. You might tell that to Friend, Gold, Kuttner, etc., also, so next time they won't make their bug-eyed monsters so gigantic, as they did in "Beauty and the Beast," etc.

Rating of the September number: 1st, "Comedy of Eras" featuring the one and only Pete Manx. 2nd, "Prospectors of Space." 3rd, "West Point of Tomorrow." The rest were so lousy that I didn't bother to rank them.—Tunica, Mississippi.

TEXAN FANS, NOTE

By Samuel Anthony Peebles

For the past ten years or so I have been an itinerant reader of *Stf*. But recently my lagging interest has been caught. I am eager to enter into the activities that are springing up all over the country. Really, I'm an old timer (remember Treasures of Tantalus, The First Men in the Moon?) and once more I find myself fascinated by the broadening scope of science fiction.

I am sending in my membership application, and I am curious as to whether there are any other fans in my own vicinity. I have never met any. Perhaps you can suggest a League club that I might join by mail. Or, if not, may a suggestion that one be founded be accepted? Many fans are scattered over the country in places where it is seemingly impossible to start a charter of our own. Could we not do something about it and start a club for those underprivileged members alone?

Down here on the border we have few local pleasures, and if there are any local members of the *SFL*, I wish their contact me. I've been following the activities of the League for some time in the columns of *T.V.S.*, and I must admit that the idea hit me just right.

Carry on with the good work, and perhaps some of us fans with ambitions to write may succeed by following the rules to be seen in our professional members' work.—El Paso, Texas.

By T. H. Richter II

Surprisingly enough, your Sept. issue did not seem to come up to the 100% plus par you have set for yourself in the past. I will admit that your departments were good, your cover was fascinating (I'm glad you are giving us some variation from Brown). Your staff of artists are tops with me. Pete Manx was better than ever and I eagerly anticipate his next journey into time. "Prospectors of Space" is one of the best short stories to date, and "The Day the World Ended" was expertly built around a novel idea and an "Oomph" ending.

But:

1. No Swap Column. Please put me down next time as being interested in exchanging checker moves with other denizens of the barber shop via post card (lower pay postage).
2. No amateur contributions.
3. "It" takes up 2 more pages than it really needs.

4. Ditto for "Story Behind the Story."
5. "Tyrant of Mars" and "West Point of Tomorrow" did not deserve the distinctive positions which you gave them. (The first story and the small print novel have heretofore been the 2 best.)

I am interested in forming a *SFL* chapter in south Texas, or getting in touch with headquarters in case there is already one.

All Pete Manx, Eando Binder, and Via stories appreciated.—33 Crawford St., Pearsall, Texas.

(Reader Richter should get in touch with Reader Peebles.—Ed.)

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The Story Behind the Story

WE'RE all tragically familiar with *blitzkriegs* launched from the air. The current war in Europe has shown us the lethal effect.

But did you know that a scientific *blitzkrieg* could be waged from underground, from inside the subterranean depths? As a matter of fact, a lot can happen beneath the surface of the Earth. Men can be taught to fly planes—without ever ascending in a ship. Astronomers can probe the heavens with telescopes—even though a barrier of solid rock separates them from their target. And man can grow plants and fruits—without benefit of sunlight!

Don Tracy tells you of this subterranean fairyland in *THE DAY TO COME*, a brilliant novel of the Invasion of America—and its aftermath. You'll be thrilled by the spectacle of a lone band of freedom's survivors battling the dictator of the world—from their underground stronghold. And you'll be glad you're on their side when the scientific *blitzkrieg* is launched! Here's a word from the author as to the background of his story:

With the radio blaring catastrophes which brought the threat of a dictator's heel ever closer to our shores, it was natural for me to think what would happen if our country—the world—was stamped upon by the tyrant. The thought came to me that there wouldn't be a place above ground where a free-thinking man could live in happiness.

Then came the thought of Uranium-235 (unmentioned in the story itself because when our sad day comes, if it comes, Uranium-235 probably will be as outmoded as whale oil lamps) and the possibilities that great atomic force would offer life, underground. And where else would fugitives from a reign of horror go, but underground? A trip to the Carlsbad Caverns helped me envision an underground country, where science would overrule politics, where madmen would be scorned instead of elevated to dictatorships. The rest, the decadence of *Their* world, has been pointed out by history a score of times. Brute power, Time has proved, cannot exist upon itself. Egypt had it, Rome had it, Christophe of Haiti had it—and Time, with its subtle "fifth column" activities, plunged them all to oblivion. Let us hope—but perhaps that is merely wishful thinking!

MAGIC LIFE

IMAGINE owning a baby stegosaurus, or a month-old brontosaurus. Swell pets, eh, even if they are a couple of million years old?

Study the cargo of prehistoric beasts on this month's cover. Any of these darling saurians are yours for the asking—but you'll have to ask Robert Arthur, their daddy.

For a private showing of the Hall of Living Fossils, however, see *THE TOMB OF TIME*, inside. In the meanwhile, here's

Arthur's letter. Warning: Read the story first!

THE TOMB OF TIME represents the incubation of some idea germs picked up in the course of browsing through the New York Public Library's volumes on the history of the world. Most intriguing though in many ways was the statement I ran across in one of the books that Nature, inflexible and remorseless, never goes back, never gives life a chance to correct an evolutionary mistake, and never grants a second chance.

Only Man, who is already on the downgrade physically slipping towards degeneracy if not extinction, has been able to balk her yet. In Man, the brain has developed enough to outwit Nature so far, by compensating for the loss of physical vigor, sensory acuteness, and general animal efficiency.

Probably it will hold her at bay for some time to come. But there is never any telling what the old lady has up her sleeve, and she may spring a surprise on us yet that will tumble Homo Sapiens into his grave before he can gather his sadly scattered wits and do anything about it. Leaving the world free for the arising of a new intelligent form, probably out of the insect kingdom.

Mulling over these somewhat gloomy thoughts, it occurred to me that perhaps, long before the manual emerged dominant on the Earth's surface, intelligent life might have risen and fallen again. If it had, it must have been reptilian. And the great reptiles present some interesting and unsolved problems.

They vanished, for instance, so very completely. Only a few degenerate descendants survive now of the life-forms that dominated the world for millions of years. The reasons for their complete vanishing are obscure. The rise of mammals and changing geologic conditions are the generally ascribed causes, but it is incredible that some lines, ferociously efficient, did not survive in sheltered sections of the earth.

Speculating further, I visualized an ancient race of intelligent creatures, reptilian in nature, dying out and helpless to prevent it despite their intelligence. And from that concept rose the notion of a Time Capsule from which life itself would arise, from which a portion of the past might be recreated living, breathing, real.

But Nature, fickle jade, has no use for old loves. Once she has discarded a line of development, it stays discarded. The re-creation of the Age of Reptiles would be in direct opposition to all her established precepts. So—

Well, there's where the story began. And here's where the story behind the story ends. The rest is up to you!

FORBIDDEN MOON

IT'S been a long time since we had Hal K. Wells grace our table of contents. Well, he's back at last, with a swell interplanetary novelet. Boy meets girl—and girl meets monster—in this scintillating saga of adventure on a forbidden moon.

Incidentally, Gerry Carlyle had better look to her laurels. For in *THE WHITE BROOD* Hal K. Wells introduces us to another glamour girl of the future. Is the System big enough for both of them?

The original plot germ that resulted in writing **THE WHITE BROOD** was the idea of an entire world placed under rigid quarantine because of deadly and unknown danger lurking upon that world.

When interplanetary travel really does arrive in our midst as daily news dispatches in our newspapers instead of merely fictional flights in science magazines, it is quite possible that one or more such globes of unknown peril will be found in the first great surge of outward bound explorers from Earth. For reasons of size, known characteristics, and other factors, it seems to me more reasonable to believe that such a world would be one of the planetary moons rather than one of the planets.

The actual nature of the peril lurking upon the quarantined globe resulted naturally from the conditions already given that peril; i.e., it had to be something that came only at periodic intervals, with times of safety between. That naturally suggested some such periodic hatching of swarms of menacing organisms as the hatch of the so-called seventeen-year locusts upon Earth.

The giant worms were selected from the many possible forms of such life. Horrible as the White Brood was, it seems to me almost a certainty that our interplanetary explorers are going to meet a character infinitely more horrible when they first prowl the globes of the Solar System.

Without human actors, the spawning of the Brood would have been merely a glorified travelogue. Accordingly, I parked a boy and a girl of likeable character but inherently opposed ideas in a position where lo's periodic hatch of peril would be an essential incident in the solution of their own personal problem, and let interplanetary and human Nature take its course.

LIFE ON MERCURY

SOME day far in the future—assuming that all the planets are eventually proved inhabited—nine scientists may gather about a round table for a heated discussion—a discussion as to which planet was the first to harbor intelligent life.

And you can bet a used space-gun that each planet will claim the distinction for itself, proving its contention somehow.

At any rate, Gordon A. Giles has his answer already, awarding the honor to Mercury. And here's what he has to say regarding his reasons:

I found Mercury quite an interesting planet. In this regard of the series. On Earth we have our floods and glaciers—of water. On Mercury, the floods and glaciers are of—mercury. To my victimized men, it's as much irony as aliteration. The problem before them had me stumped just as much for quite a while. Getting down through 30 feet of mercury isn't child's play. In fact, nearly impossible.

The alternative used struck me as the only logical one. But if the denouement of it all surprises you, ask yourself the question—did I think of it? If you did, the faces of the ten Mercurian explorers should be violently red. And mine.

Realism is the keynote of all the "Via" stories, so probably you're wondering about the vegetable-minds introduced. They are the height of fantasy, you accuse. Yet are they?

I think the most fantastic conception known to us humans is that Earth is the only inhabited and habitable planet. Microbes are known that live blithely in boiling water. Others defy liquid air. Life is tenuous, and infinitely adaptable. And yet our staid men of lore pull at their beards and say, there is probably very little, if any, life on other planets.

Still, microbes aren't beings of intelligence. No, but beings of intelligence come from mi-

(Concluded on page 124)

MAKE YOUR OWN RECORDS AT HOME



Charlie Barnett with Judy Ellington and Larry Taylor, vocalists in his band, listen to a record they just made with Home Records.

Now a new invention permits you to make a professional-like recording of your own singing, talking or instrument playing. Any one can quickly and easily make phonograph records and play them back at once. Record your voice or your friends' voices. If you play an instrument you can make a record and you and your friends can hear it as often as you like. You can also record orchestras of favorite radio programs right off the air and replay them whenever you wish.

Find Out If You Have Professional Talent

The movies and radio are in vogue in both Broadway and Hollywood are ever seeking new talent.

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STANDARD ART STUDIOS, 113 S. Jefferson St., Dept. 400P, Chicago

(Concluded from page 123)

crobes, or from single-celled life. The hardy cells that first found life on hot, blistered Mercury simply evolved into higher life-forms adapted to the same conditions.

If this is granted, then the rest follows. Mercury cooled first, of all the planets, being smallest. That is, cooled from a molten state to where it could begin to support life. Therefore, preceding Earth as a habitable globe by millions of years, intelligent life must have arisen on it that much earlier. As for this evolution culminating in the vegetable stage, that's purely a premise.

Anyway, I like to think this follows my keynote of realism. Life on Mercury first, preceding the Martian era, which would be the next planet to cool. Venus, as in the "Via Venus" series, should be comparable to Earth, and somewhat behind.

By the way, I was about to reveal the mystery of the Martian Age. Honest I was, readers. But unfortunately the mercury flood broke the pyramid to bits, so what could I do!

WORLD WITHOUT LIGHT

SUPPOSE some cosmic barrier screened out the light and heat being radiated from the Sun, barred it as effectively from hitting the Earth as the Heavside layer prevents dangerous actinic rays from striking us? Could mankind survive without any solar radiation? Henry Kuttner gives you the answer in REVERSE ATOM, a powerful short story.

REVERSE ATOM was an attempt to show the effect of the alteration of apparent immutable laws upon a set of various characters. There are no heroes or villains in the tale; instead, I tried to create normal human beings, with problems, virtues, and weaknesses of their own. Their lives do not revolve around the catastrophe with which the yarn deals. It is, logically, an important incident in those lives, but much has happened before and after the reverse atom was created. To my mind, psychology is as important a science as biochemistry or astrophysics, and I have attempted to stress this while writing the story.

Nor is the basic premise too untenable. Planck's law, and the famous Uncertainty Factor, have shown us that logic breaks down within the atomic orbit. There is no reason why another Universe should not be governed by natural laws directly at variance with those of our own. To us, those laws would seem sheer madness. And, faced with the upset of those laws, human reactions would be various—and I think interesting.

So—I hope the readers will like my yarn!

A SNARE FOR TOMORROW

(Continued from page 117)

Lil gulped and swallowed. The relatives all gulped and swallowed. Dos' three sons had come back while he had been visiting Tomorrow, and they gulped and swallowed, too.

"What is the meaning of the name they gave you?" asked his eldest son.

Dos did not know, but he must never let them suspect that there was anything he did not know.

"The name they gave me means, in

BEST FUN, FICTION AND FOTOS IN

our tongue, The Great and Mighty."

"And can you not tell us how they said these words in the language of the people of Tomorrow close to the end of time?"

Dos grinned triumphantly. They would never catch him on anything so simple.

"Yes," he said. "I know well the name. Why not, since it became my own?"

"Well, what is it, Father?" demanded his youngest son.

Dos frowned at the boy's boldness. His son cringed as from a blow. Then he grinned, and deferred knocking out the boy's brains to another time. He filled his lungs and bellowed the name the people of that Tomorrow had given him.

"Mani-Ak-Looz!" "Mani-Ak-Looz!"

SCIENCE QUIZ—Answers

(See Pages 50-51)

POSITIVE OR NEGATIVE

1. True.
2. False. Roentgen was the man.
3. True.
4. False. It differs in the method of setting up magnetic field.
5. True.
6. False. Dalton's responsible.
7. False. The helicopter is the machine you're thinking of!
8. False. Were you thinking of cerebrum?
9. False. They most nearly resemble heat waves.
10. False. An object weighs most at the Earth's surface.
11. False. A British thermal unit is the amount of heat required to raise the temperature of a pound of water one degree F.
12. True.
13. False. In hardness.
14. True.
15. True.

TAKE A LETTER

- | | | |
|-------|--------|--------|
| 1. b. | 6. b. | 11. c. |
| 2. c. | 7. d. | 12. c. |
| 3. a. | 8. d. | 13. c. |
| 4. a. | 9. a. | 14. b. |
| 5. c. | 10. d. | 15. c. |

SKELETONS IN THE CLOSET

Cambrian . . . Agnostus
 Devonian . . . Dipterus
 Carboniferous . . . Lepidodendron
 Permian . . . Palaeoniscus
 Triassic . . . Dinosaurs
 Jurassic . . . Pterodactyl
 Cretaceous . . . Ichthyornis
 Eocene . . . Horse
 Miocene . . . Mastodon
 Pliocene . . . Sabre-Toothed Tiger

SAY IT WITH FLOWERS

1. ovule; 2. stamen; 3. pistil; 4. calyx; 5. pollen; 6. petal; 7. anther; 8. carpel; 9. ovary; 10. ligule.

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ALIEN REGISTRATION NOTICE

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As part of the National Defense program, a nationwide registration of aliens will be conducted from August 27 through December 26, 1940, by the Immigration and Naturalization Service of the Department of Justice. Registration will take place in the post offices of the nation. It is expected that more than three and one-half million aliens will be registered during the four-month period.

Registration is made compulsory by a specific act of Congress, the Alien Registration Act of 1940, which requires all non-citizens to register during the four-month official registration period. The law requires that all aliens 14 years or older are to be registered and fingerprinted. Alien children under 14 years of age will be registered by their parents or guardians. When alien children reach their fourteenth birthday, they will be required to register in person and be fingerprinted.

A fine of \$1,000 and imprisonment of six months is prescribed by the Alien Registration Act for failure to register, for refusal to be fingerprinted, or for making registration statements known to be false.

As part of its educational program to acquaint non-citizens with the registration requirements, the Alien Registration Division is distributing more than five million specimen forms listing the questions that will be asked of aliens at registration time. Besides the usual questions for establishing identification, the questionnaire asks the alien to tell how and when he entered the country, the method of transportation he used to get here, the name of the vessel on which he arrived.

To make their registration easier, aliens are being asked to fill out sample forms, which will be available prior to registration, and take them to post offices where they will be registered and fingerprinted. Every registered alien will receive by mail a receipt card which serves as evidence of his registration. Following registration, the Act requires all aliens, as well as parents or guardians of alien children, to report changes of residence address within five days of the change.

The Alien Registration Act was passed so that the United States Government may determine exactly how many aliens there are, who they are, and where they are. Both President Roosevelt and Solicitor General Biddle have pointed out that registration and fingerprinting will not be harmful to law-abiding aliens. The Act provides that all records be kept secret and confidential. They will be available only to persons approved by the Attorney General of the United States.

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LOOKING FORWARD

(Continued from page 8)

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More contest news: Next issue we will announce the winners in our great scientific contest for the best letters regarding Oscar J. Friend's story, THE IMPOSSIBLE HIGHWAY, which appeared in the August issue. Watch for the prize winners in this contest!

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jewel - "Cadence of Time" - \$29.75.
D-M154 - Bulova feature for men; 17 jewels; leather
strap - \$29.75.
\$2.58 a month



E-P159 - Ladies' Kent Watch; 7 jewels; newest style
10K yellow rolled gold plate case - \$15.95.
F-K196 - Men's Kent Watch; 7 jewels; sturdy; new
style; 10 yellow rolled gold plate case - \$15.95.
\$1.58 a month

L.W. Sweet

MAIL ORDER DIVISION OF FINLAY STRAUS, Inc.
Dept. 120 1670 BROADWAY, NEW YORK

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TOTAL COST ONLY

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A MONTH

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\$1,000.00

Maximum Indemnity for Natural or Ordinary Death

\$2,000.00

Maximum Indemnity for Auto Accidental Death

\$3,000.00

Maximum Triple Indemnity for Travel Death

LIBERAL BENEFITS SHOWN IN TABLE BELOW

The amount of insurance payable upon the death of any of the persons insured hereunder shall be the amount set out in the following table for the attained age nearest birthday at death of such person divided by the number of persons insured hereunder immediately preceding such death.

Table of amount of insurance purchased by a monthly payment of one dollar.

Attained Age at Death	Natural or Ordinary Accidental Death	Auto Accidental Death	Travel Accidental Death
	Amount	Amount	Amount
1-40	\$1000.00	\$2000.00	\$3000.00
41-50	750.00	1500.00	2250.00
51-56	500.00	1000.00	1500.00
57-62	300.00	600.00	900.00
63-68	200.00	400.00	600.00
69-75	100.00	200.00	300.00

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Bankers Insurance Bldg., Jefferson Sta., Desk 36, Chicago, Ill.

Please send details and tell me how to get the Family Group Policy for free inspection.

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Street or R. F. D.

City State